THE SEA
ITS HISTORY & ROMANCE

FRANK C. BOWEN

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THE SEA
ITS HISTORY & ROMANCE
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THE "DUNCAN DUNBAR" BLACKWALL FRIGATE, BUILT 1857
(From a Contemporary Water-Colour)

THE SEA

ITS

HISTORY AND ROMANCE

By

FRANK C. BOWEN

Author of "The Golden Age of Sail"; "Ships for All"; "The King's Navy"; Editor of "Merchant Ships of the World"

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CHAPTER I—THE DEVELOPMENT OF THE WARSHIP AND THE STEAMER

British Naval Construction After the Peace of Paris.

Immediately the Napoleonic menace was definitely ended a big step was made towards the reduction of the British fleet, as was only natural. This reduction was so sudden and so drastic that it imposed very considerable hardship on the personnel, but on the other hand it was very necessary for the progress of design, for latterly it had been more or less stabilised and no very great effort to improve it had been made.

The Strength of Ships.

The war with France had shown that nearly every man-of-war that went to sea was deficient in strength, for the old method of construction had been continued, while ships had increased very greatly in size and in weight of armament. Therefore, Sir Robert Seppings and a Mr. Roberts, a sub-surveyor of the Navy, introduced a system of iron knees and chocks with iron side-plates which very greatly increased the strength of the ship. Sir Robert Seppings then went still further and introduced his famous trussed frame, which effected a great increase in strength and especially checked the tendency for ships to hog at sea. Seppings also introduced numerous other improvements into the method of building ships for the Navy.

The Round Stern.

At the very end of the Napoleonic war a great improvement had been made in the shape of ships by doing away with the old beak bow surmounted by a square bulkhead that was not sufficient to keep out grape, and substituting a high bow in modern fashion. The stern was still square, however, and it was very difficult to get any bearing from the after guns. Certain captains obtained this by the expedient of blowing a hole through their planking, but it was an expensive and dangerous proceeding and required a man with a good deal of courage to undertake it. Seppings brought in a circular stern, which permitted an all-round fire, but this had considerable disadvantages, and in 1829 Mr. Roberts and Mr. Blake improved on it by introducing an elliptical stern, which certainly looked infinitely better and was really rather more effective.

Improvement in Ship Design.

At this time a number of private individuals and naval officers were permitted to put forward their ideas on ship design, and one or two of them were put into practical effect by the Admiralty and tested. Captain Hayes built the cutter *Arrow* and tried her against H.M.S. *Basilisk*, Seppings's improvement on the revenue cruiser. The *Arrow* did so well in this trial that the principles of her construction were adopted for the corvette *Champion*, the School of Naval Architecture

backing Captain Hayes. The School constructed the corvette *Orestes* against Seppings's *Pylades*. These ships were tried against one another and altered time and again, until the experience gained meant a very considerable improvement in the design of these little vessels, which were built essentially for speed at sea. The system of conducting trials had produced such good results that it was continued; in 1827 Commander Symonds designed the *Columbine* to be tried against the *Sapphire*, *Tyne* and *Challenger*, and these ships, with the *Wolf*, *Acorn* and *Satellite*, were formed into an Experimental Squadron which carried out a number of cruises and which proved that the *Columbine* was superior in most conditions but failed when heavily laden in heavy weather. The trials supplied a mass of data, but although they did not actually prove anything they gave Symonds sufficient patronage for him to be allowed to continue his experiments in ship design.

Symonds as Surveyor.

Captain Symonds had given sufficient proof of his ability to obtain very considerable interest, and with this backing he was given the opportunity of further advancing his ideas. The result was that in 1832 he was appointed to the Surveyorship of the Navy, and at the same time the hampering restrictions as to tonnage were to a very great extent removed. Without wishing in any way to detract from the undoubted merit of his ships, one cannot help thinking that this removal of a restriction that had been handicapping British designers for centuries had a good deal to do with it. Soon afterwards he was knighted, and as Sir William Symonds proceeded to build ships of greater speed and stability than had theretofore been regarded as possible. There were many who believed that he had attained these qualities at the price of the ship's battle-worthiness, but he certainly improved the design and the competitive trials to which practically all new men-of-war were subjected for a dozen years after he took over the Surveyorship resulted in nothing but good for the Navy. One curious result of these experiments was that the French Navy, which had always set such a wonderful example to the British in ship construction, ordered an enquiry into the reason of their ships being inferior in sailing qualities to the British.

The Classification of Ships.

It will have been noticed that the nominal force not only of British but of practically all men-of-war differed very considerably from that which they were able to bring into action, one of the principal reasons being the rule which omitted carronades from consideration. In February, 1817, therefore, it was ordered that in future these guns, which were often a very considerable proportion of the ship's battery, should be properly reckoned, but even then cases occurred in which the smaller carronades were omitted. Nevertheless, a 50-gun ship was likely to be a 50 and not a 60.

The Decline in Gunnery.

It is to be feared that the excellent lessons in gunnery taught by Captain Broke of the *Shannon* were soon forgotten after the peace,

partly because there was a strong feeling that it did not matter, and partly because of the fact that the arming of men-of-war being in the hands of another department gave naval officers but little encouragement from the top. The allowance for practice was one round for each captain of a gun in seven months, on which it would be difficult to get any pitch of efficiency.

The Work of General Paixhans.

It fell to a French General, Paixhans, to develop the lessons that had been pointed by Robins and others. Shell fire was not altogether new, for of course bomb ketches had been in existence in all the fleets for many years. As long ago as 1690 a Frenchman had perfected a means of firing bombs from long guns, but unhappily had died without revealing his secret. Paixhans conceived the idea of completely remodelling the French fleet, until it became a navy of steamers firing shells exclusively. This was rather more than the depleted exchequer of the country could stand, and therefore he put forward the scheme of re-arming it, giving each ship a battery of the same calibre guns, firing round shot or shell as was most convenient, although he had but little faith in the future of the round shot. He described the French 36-pounder gun as being the ideal calibre for his purpose, but he would have mounted guns of different weight in the different decks of the ship. He then proposed to ream out these 36-pounders until they took a 48-pounder shell and at the same time to construct a number of howitzers. Demonstrations were carried out at Brest in 1821 and 1824, first of all with a fixed target and then at the frigate *Pacificateur*, which was soon set on fire. These tests greatly impressed the French authorities, but they were continued until 1837, when the French Navy decided to adopt the Paixhans gun entirely.

The "Undaunted" Experiments.

In 1825 a Mr. Martin attempted to improve on the shells that were then being introduced into all navies, and introduced his hollow shot filled with molten iron. Both 10-inch and 8-inch shells were already in use in the Royal Navy and he adapted his system to these calibres, the former containing 40 pounds and the latter 25 pounds of liquid metal. An experiment was carried out with the old frigate *Undaunted*, which produced surprising results. Only five of these shots were fired in all. All of them succeeded in doing a good deal of damage, although not all of them broke up as they should have. After the fifth, however, it was seen that the ship was thoroughly on fire, and in spite of all the efforts of the fire brigades that had been gathered she was totally destroyed.

The First Shells in Wartime.

The first shells were used in active service in the struggle of Greece against Turkey in the 'twenties. Captain F. A. Hastings, of the British Navy, was in command of a Greek division with his flag in the steam man-of-war *Karteria*, and, quite apart from any experiments that had been carried out abroad, he decided that shell fire was the future form of naval gunnery. He was well laughed at for his pains, but he realised

that his force was considerably inferior to that of the Turks and he made every effort to rectify matters. Somebody sent him a copy of Paixhans' book, and he became so impressed by the theories put forward by the brilliant Frenchman that, in spite of all opposition, he determined to restock his magazines with shells, and, having done so with a good deal of difficulty, he found them so effective against the Turks that he wrote a most enthusiastic book on the subject which, published in 1829, caused a very great impression in naval circles. In particular he flatly denied that there was any great danger of fire in the use of shells on board ship, a danger which had been one of the principal arguments of the opponents to shell fire.

Bigger Guns.

When the French began to advocate bigger calibres the British followed suit, and first of all achieved their desire by boring out guns to a bigger calibre. At the same time it was realised that the amount of windage allowed was quite unnecessary, which was a great step in the right direction. Experimental shell guns were constructed with calibres of 8, 10 and 12 inches, and H.M.S. *Phœnix*, firing the first-named, did excellent work in 1836 at San Sebastian. Immediately afterwards the French decision to re-arm their Navy was published, and the British immediately did likewise. One of the first results of the increased popularity of shell guns was the abolition of the carronade, but it must not be thought that the change was carried through without considerable opposition.

The Americans and Shell Fire.

The last of the Great Powers to adopt the shell gun were the Americans, who were probably prejudiced against it by the success of their heavy round shot in the 1812 war. It was not till 1841 that they adopted the 8-inch shell gun to any considerable degree, and then only as a complement to their long 32-pounders. It was many years before they became the principal advocates of high explosive shell.

The Rifled Gun.

The rifled naval gun did not come into being until long after the rifled musket had proved its value. It was about the time of the Crimean War that Mr. William Armstrong, who was later to make such a great reputation by the manufacture of cannon, proposed to the War Office that field guns should be built on the same principle as the rifle, increasing the range and the effectiveness of the gun wonderfully. He turned out his first wrought-iron gun early in 1855, firing long lead projectiles instead of cast-iron round shot, and after repeated trials it was accepted as the standard field gun in 1858. This Armstrong gun was a breech loader, firing a projectile covered with lead, the idea being that this soft covering would engage in the rifling and give the requisite twist. At the same time Mr. Whitworth, who was afterwards connected with Armstrong, turned out a muzzle-loading cannon with hexagonal rifling. The Lancaster rifled gun must also be mentioned, a curious weapon with an oval projectile which caused some very nasty accidents

(*Macpherson Collection*)

H.M.S. "BELLEROPHON," 80 GUNS, LAUNCHED AT PORTSMOUTH, 1818
(From a Water-Colour by O'Reilly)

The high bow shows the distinct improvement of post-war design, but she is still essentially the ship of the eighteenth century.

THE CHANNEL FLEET BEARING UP AND MAKING SAIL DOWN CHANNEL, MAY 13, 1846

(From a Colour Lithograph by H. J. Vernon, Printed by Day & Haghe)

A comparison of H.M.S. St. Vincent *in the foreground with the picture of the* Bellerophon *shows a number of points of improved design.*

(From an impression lent by Messrs. T. H. Parker)

(Macpherson Collection)

THE U.S. FRIGATE "CUMBERLAND"
(From a Lithograph in Colours by N. Currier, New York, published 1848)

The success of the big U.S. frigates in the war of 1812 *encouraged them to build bigger and bigger vessels of this class, culminating in ships like the* Cumberland *of* 54 *guns.*

H.M.S. "CANOPUS"
(From a Colour Lithograph by T. G. Dutton)

(*Macpherson Collection*)

H.M.S. "SUPERB," 80 GUNS (BUILT 1842) SAILING FROM SPITHEAD, 1845
(From a Colour Lithograph by and after H. J. Vernon)

A French prize, the Canopus *was always one of the smartest sailers in the Navy and in a* 15*-mile race off Lisbon in* 1847 *she beat the* Superb, *shown in the lower picture, who was also a famous sailer.*

in the Crimean campaign. Italy, Sweden and France all evolved rifled weapons, and of these the French was infinitely the best and led to a large number of smooth-bored guns being converted. All these guns were for work on land, but naturally the naval artillerists were watching developments carefully, and it was not to be long before they were put to naval use.

The Armstrong Breech Loader.

In the late 'fifties the Armstrong Breech Loader came into such prominence that it really killed itself. There is no doubt that it was a great improvement on the muzzle-loading guns that had gone before, but at the same time it was a pioneer and had all the pioneer's faults. Had its inventor been forced to fight every step of his way, there is no doubt that he would have improved it into a magnificent gun, but as it was, there was immediately a great rush of enthusiasm to introduce the gun into the British Navy and he was too busy turning out the pieces that were demanded to give their development the attention that it deserved. The 100-pounder gun was the biggest, weighing just over four tons and having a length of ten feet; the 40-pounder had the same length but only weighed thirty hundredweight, while the 20-pounder weighed half a ton and was 12½ feet long. The gun was also built in the 12-pounder and 6-pounder sizes. It was unfortunately liable to go wrong at critical moments, and a series of accidents led to its being distrusted in the service. The result of this was a wave of feeling in the wrong direction, and instead of carrying out a number of experiments that would lead to the breech loader being perfected, the British Navy went back to muzzle loaders, so that in 1877 the great majority of the guns in the British fleet were wrought iron muzzle loading weapons, ranging from the 17-inch 100-ton gun firing a shell weighing 2,000 lbs., to the 12-tonner with the 250-lb. shell. At this time, however, Armstrong had already put forward a suggestion for a 38-ton high velocity gun, which was to develop into the modern gun.

H.M.S. "Monkey."

The first steamship to run for the Navy was H.M.S. *Monkey*, which was built at Rotherhithe by Mr. Evans in 1821. She was 212 tons burthen and had engines of 80 horse-power. She was followed immediately afterwards by the *Comet* of 238 tons, built in Deptford dockyard. Then came the *Sprightly* in 1823, whose engines were of 100 horse-power and which was lent to the Post Office service to run between Holyhead and Dublin until 1848. All these steamers, and many others that immediately followed them, were designed for subsidiary service only and were not, strictly speaking, men-of-war.

The U.S.S. "Seagull."

A very useful little pioneer steam man-of-war which saw very active service in Porter's campaign against the pirates in the West Indies was the U.S. steam galliot *Seagull*, a ship of 100 tons burthen which had been purchased from the merchant service. She was employed on this anti-piratical work between 1822 and 1825, when she was paid off as a receiv-

ing ship at Philadelphia and remained there until she was sold out of the service in 1840.

The French Navy and Steam Engines.

As with every other mechanical invention, the French Navy soon interested itself in steam engines, and did so to such practical effect that in 1828 it was decided that the gun foundry on the island of Indret on the river Loire should be made into a national engine-building establishment to supply the Navy, a function which it still fulfils. *Le Pélican* was the first steamer that they built, a weird little vessel propelled by two pairs of paddles. The next two were the frigates *Castor* and *Crocodil*, vessels mounting six 24-pounder carronades and three 12-inch Paixhans shell guns. By 1830 the French had nine steam men-of-war and nine more under construction.

The Stevens Ironclad Battery.

There was one ship laid down in 1832 that certainly deserves special mention, and that was the Stevens Ironclad Battery. It was 250 feet long with a beam of 28. With his two brothers, Mr. Robert L. Stevens of New York drew up the plans and, after very considerable delay, laid the keel of the battery in 1843. In 1854 it was still on the stocks, and by that time gunnery had improved so much that it was decided to alter it out of all recognition, providing it with engines which were supposed to be powerful enough to give it a speed of nearly 16 knots. One of the Stevens brothers died a very wealthy man and left a million dollars, with instructions to his executors that it should be spent on completing the battery, which should then be presented to the State of New Jersey. That million was expended and still the ship was not launched. Meanwhile, the heirs to the estate could not use the slip on which she was still lying, and they therefore finally got the consent of the court to have her sold. Finally it was necessary to get her apart by means of explosives, the work being done at night without notice to prevent neighbouring householders getting injunctions.

The "Fulton II."

The *Fulton II* of 1837 was designed as a floating battery to defend New York in place of the *Demologos* or *Fulton I*, which has already been described and illustrated. She was colossally strongly built, with dimensions 180 by 34 by 13 feet 4 inches depth of hold, which gave her a tonnage of 973 and a displacement of 1,433, and was given two steam engines driving paddles. She was armed with eight 42-pounders and one 24-pounder, and although she did very little sea work, she carried out a cruise to West Indian waters which showed that the sea-going steam man-of-war was quite practicable. She was then laid up in New York until 1852, when she was re-engined and generally modernised, given a single 8-inch shell gun and four 32-pounders, and on her trial trip contrived 13 knots. She carried out a number of cruises in the Caribbean and was then laid up in the Pensacola Navy Yard, where she was destroyed by the Confederates in 1862.

The "Penelope" Experiment.

Steam was now beginning to get such a hold on the imagination of the British Admiralty that in 1843 it was decided to take the 46-gun frigate *Penelope* into Chatham Dockyard, cut her in two in dry dock and lengthen her by a 65-foot section that should contain boilers and engines of 650 horse-power. The experiment was not a great success, for the extra buoyancy of the new section was not sufficient to support the machinery and she floated far too low in the water. Next year the Earl of Dundonald, the famous Captain Lord Cochrane of the Napoleonic War, contrived to persuade the Admiralty to permit him to design a steam sloop. H.M.S. *Janus* was the result, a double-engined steamer of 763 tons burthen, with engines of 200 horse-power, built to peculiar designs of his own. The machinery was not successful, with the result that it was taken out and ordinary engines put in its place with infinitely better results. Soon afterwards Rear-Admiral Sir Charles Napier obtained permission to adapt the design of H.M. Paddle Sloop *Odin* to ideas of his own and produced the *Sidon*. She was particularly noteworthy as having all her machinery below the water-line, and being fitted with a system of water ballast tanks which kept her at the same draught when her coal was exhausted, a very great advantage with a paddle steamer.

The Case of H.M.S. "Goliath."

During the transition period from sail to steam there was a good deal of money wasted by the British Navy, and the case of H.M.S. *Goliath* may be taken as an example. She was launched at Chatham Dockyard in 1842, an 80-gun line-of-battle ship with the best lines that had been evolved up to then; but it was a period of naval economy and there were no seamen to take her to sea. Accordingly she was laid up in the Medway until she might be needed, the ship keepers having their wives and families on board after the fashion of the time. Fifteen years later, in 1857, it was realised, from the experiences of the Crimean War, that sailing men-of-war were as obsolete as bows and arrows, and she and many others were cut down and fitted with machinery. The extra weight reduced her armament to 60 guns, and five years later she was reported as being unfit for battle, a verdict that should have been passed on most of her contemporaries who were converted in a similar manner. However, it would not have done to have broken her up immediately when naval economy was again a subject of discussion, and she was laid up until, in 1870, she became a training ship in the Thames, where she was burned five years later with loss of life.

The Inventor of the Paddle Wheel.

There was a good deal of discussion as to who was the actual inventor of the paddle wheel. Nicholas J. Roosevelt, who has already been mentioned in connection with Fulton's early steamboats, took out an American patent on December 1st, 1814, and afterwards, in 1816, issued an advertisement in the American Press, claiming to be the inventor and challenging any discussion on the subject. At the same

time he threatened legal proceedings against anybody who should use such paddles without his licence.

The Screw Propeller.

When Archimedes invented the screw pump, he also presumably invented the screw propeller, although he did not realise it. The use of a screw as a propeller instead of a paddle was suggested as long ago as 1731 by a Frenchman named Duquet, but he had no idea of a steam engine and it came to nothing. Joseph Bramah in 1785 took out a patent for a screw propeller in addition to a paddle, but he does not seem to have put his idea to any practical purpose. William Littleton in 1794 took out a patent for a screw propeller to be worked by a capstan. He was a London merchant with a taste for ingenious invention, but he does not appear to have made any effort to put his ideas to practical use, although H.M. Transport *Doncaster* was propelled by this means at about a knot and a half in 1802. David Napier, Trevithick, John Millington, Robertson Buchanan, and others all put forward different schemes, but it was not until 1825 that a big step forward was made by the offer of a substantial reward for the best plan of propelling vessels without paddles. Commander Samuel Brown, R.N., submitted the winning scheme. His propeller had two blades, set at an angle of 45 degrees and cased forward. This propeller was worked by an engine of 12 horse-power and was fitted with a universal joint to permit it to be lifted right out of the water if necessary. Although the trials were successful they were not continued. After that came any number of new screw propellers, most of them of doubtful efficiency, until Francis Pettit Smith and John Ericsson submitted their ideas.

Smith and Ericsson.

In 1836 Francis Pettit Smith took out a patent for the Archimedean screw propeller and Captain John Ericsson followed him two months later. Smith's idea was to place his screw " in space formed in that part of the after part of the vessel commonly called the dead wood of the run," and this was undoubtedly the most practical position and one that was generally adopted. John Ericsson's propeller was rather more complicated. Smith's propeller was tried in a small boat on the Paddington Canal, and, being found satisfactory, was further tried in a steamer between Blackwall and Margate. Later she cruised round the Kentish coast and averaged eight miles an hour. The manner in which this propeller was improved is distinctly interesting. At first it consisted of two complete turns of the screw, but when it was being tried for the first time in the Canal it struck some obstruction and half of it was torn off. Immediately the boat shot ahead. Ericsson also contrived very satisfactory results from his experiments, but the Admiralty would not become enthusiastic and so discouraged him that finally he determined to take his idea across to the United States. Mr. Francis B. Ogden, U.S. Consul at Liverpool, and Captain Robert F. Stockton were the two men who saw most virtue in his scheme and who encouraged him to take it to America, where it immediately became popular.

(*Macpherson Collection*)

THE CLYDE PASSENGER PACKET "MARIAN" ON LOCH LOMOND, *c.* 1817
(From an Aquatint in Colours, Contemporary)

Once the conservative antipathy to the steamboat had been overcome it made great progress in popular favour in Scotland and was soon to be found round all the well-known tourist spots in addition to maintaining essential communications.

(*Macpherson Collection*)

VIEW OF LONDON BRIDGE AND CUSTOM HOUSE, WITH THE MARGATE STEAM YACHTS

(From a Colour Aquatint drawn and engraved by R. Havell & Son, published by Colnaghi & Co., July, 1820)

The London Engineer *in the forgeround was regarded as being the finest steamship afloat when she first came out and was put on the Margate run.*

(*Macpherson Collection*)

THE EMBARKATION OF GEORGE IV AT GREENWICH, AUGUST 10, 1822, FOR SCOTLAND

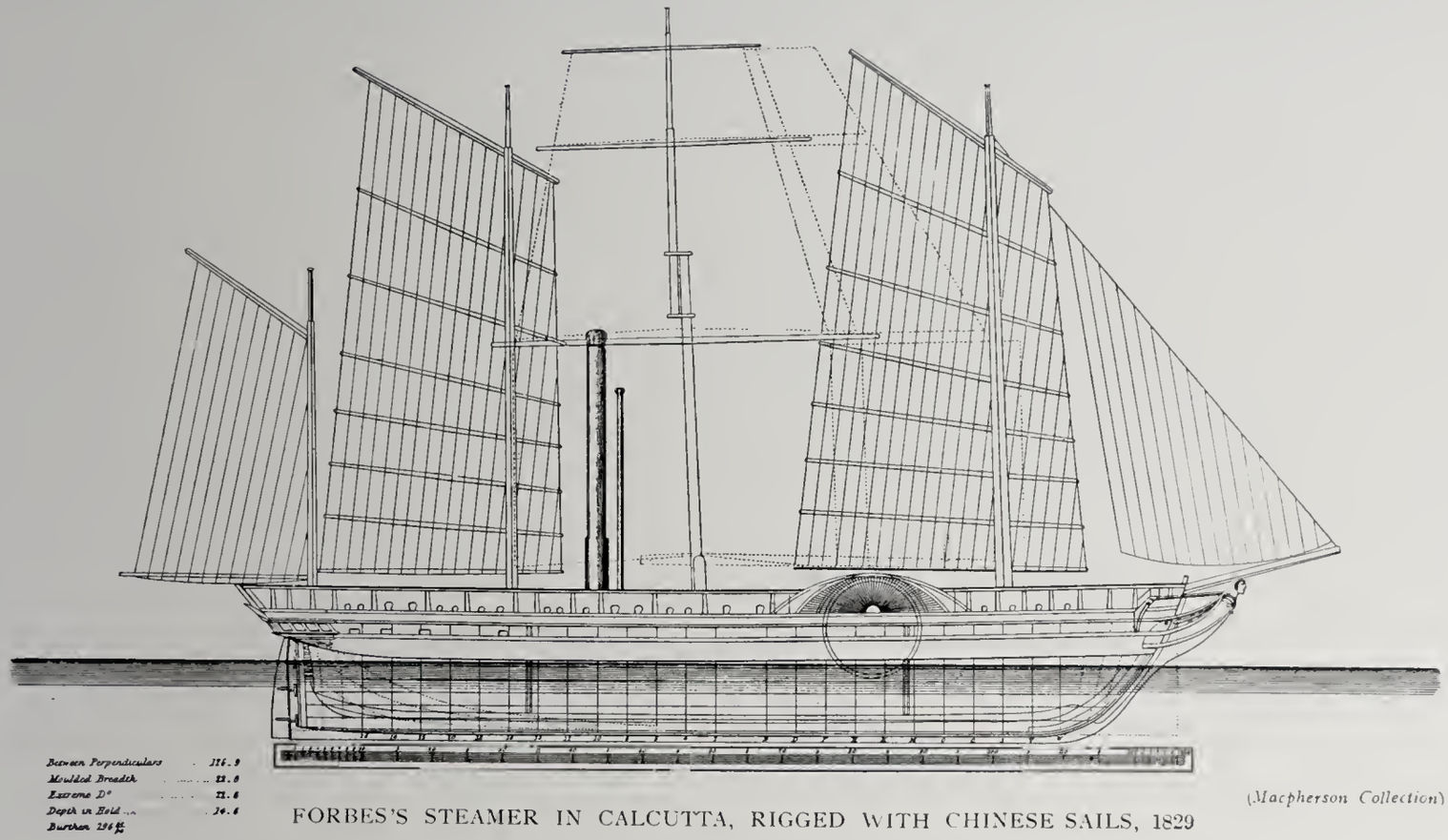
(From a Proof Aquatint in Colours by and after R. Havell, Junr., published August, 1822)

At that time Greenwich already had quite a fleet of passenger steamers which plied up the river to London Bridge and down to Gravesend. Several can be seen in the picture surrounding the Royal yacht.

(*Macpherson Collection*)

ANDREW SMITH'S IMPROVED STEAMBOAT WITH CONCEALED ENGINES AND PADDLES
(From a Lithograph in Colours by Day & Haghe)

Objection was always found to the funnels of the steamboat and various ideas were put forward to do away with them, although they very seldom got beyond the experimental stage. The three-man band in the print is typical of the time.



FORBES'S STEAMER IN CALCUTTA, RIGGED WITH CHINESE SAILS, 1829

(*Macpherson Collection*)

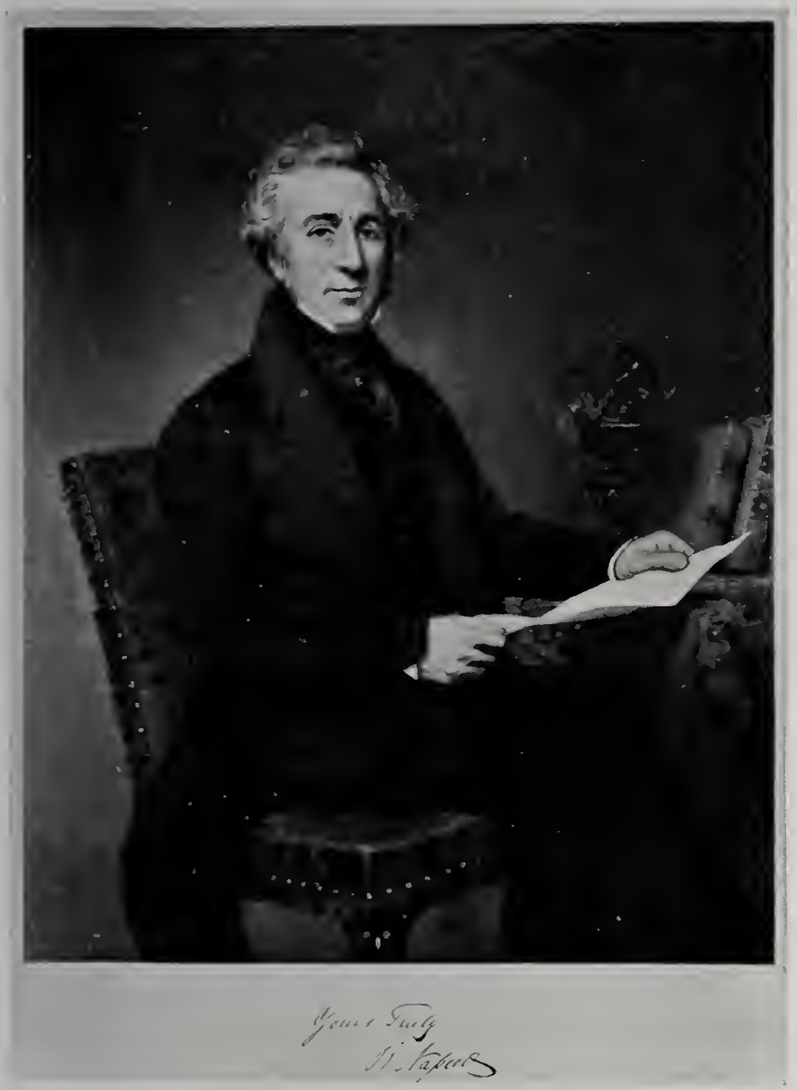
Steamships very soon began to make their appearance in Eastern waters, generally with local adaptations to their rig, but the idea of fitting one with junk sails was novel.

(*Macpherson Collection*)

THE HON. EAST INDIA COMPANY'S STEAMSHIP OF WAR, "BERENICE," STANDING OUT OF BOMBAY HARBOUR

(From a Colour Aquatint by E. Duncan after W. J. Huggins, puplished August, 1837)

The Berenice *was built at Glasgow in* 1836 *to combine the duties of a* 4*-gun steam sloop with those of a mail steamer between Suez and Bombay.*



(*Macpherson Collection*)

ROBERT NAPIER, (1791-1876)
(From a Proof Mezzotint by E. Burton after J. G. Gilbert)

SIR FRANCIS PETTIT SMITH (1800-1874)
(From a Proof Mezzotint by S. Marks after W. Boxall, A.R.A.)

Napier was one of the far-sighted engineers who gave the Clyde her reputation for absolute reliability. Pettit Smith's experiments with the screw propeller marked a definite epoch in the history of shipping.

(Macpherson Collection)

THE SCREW STEAMSHIP "ARCHIMEDES" OFF THE NORE, ON HER TRIP FROM GRAVESEND TO PORTSMOUTH, MAY, 1839

(From a Colour Aquatint by C. Rosenberg after W. J. Huggins)

The steamer Archimedes *with Pettit Smith's screw propeller made a cruise round the coast which converted many people to the new method of propulsion.*

The "Archimedes."

The success which had attended Smith's and Ericsson's experiments resulted in the Ships' Propeller Company being formed under the management of the former, and backed by Messrs. Rennie, the engineers. In 1838 they built the *Archimedes*, a little vessel of 237 tons burthen with an engine of 66 horse-power. At first she was fitted with a screw having a complete turn, but later this was altered to one with an interrupted thread. She proved herself to be a very handy vessel in the Thames and then went round to the Bristol Channel where, in April, 1840, she was tried against H.M. Steam Packets *Ariel*, *Beaver* and *Swallow*. The Packet *Widgeon*, the fastest ship on the Dover station, had already been set against the *Archimedes*, but as she was 75 tons smaller and 10 horse-power more powerful, this test was scarcely a fair one, although the *Archimedes* contrived to hold her own. The *Archimedes* then went right round England, demonstrating in various ports, and then ran out to Oporto where she attracted a lot of attention.

The "Rattler" and the "Alecto."

In 1843 H.M.S. *Rattler*, of 888 tons burthen, was built with a screw propeller, her sister ships *Alecto*, *Polyphemus* and *Prometheus* being left as paddlers. She underwent various trials with various screws before it was decided that the latest design of Smith's propeller was really the best, and it was then decided to try her against her sister, the *Alecto*. On March 31st, 1845, they raced from the Nore to Yarmouth, the *Rattler* winning by 24½ minutes. Other races showed the same result, and it was then decided to lock them stern to stern and have a tug-of-war. The *Alecto* was allowed to work up to full speed, when the *Rattler* went ahead and in a few minutes was towing her adversary stern foremost at 2½ knots. Similar experiments were later carried out between H.M.S. *Niger* and *Basilisk*.

The Cylindrical Boiler.

With the demand for rather higher steam pressure it was realised that the old box type of boiler was quite unsuitable, and accordingly the cylindrical boiler came into being. By this means it was possible to generate steam up to 60 lbs. pressure and over, the boilers having two or more furnaces and being a great improvement on the old square boiler whose strength was obtained by numerous stay rods intersecting the interior. As steam pressure and power increased, however, the boilers had a tendency to increase in size far more than was convenient for men-of-war, where all machinery was supposed to be kept below the water-line. So they were made double-ended instead of single-ended, and had a central combustion chamber. These boilers were excellent for their purpose and are maintained for the merchant service to this day, but as the naval engineer became more exacting in his demands the locomotive boiler came into being.

The Belleville Boiler.

The Belleville water-tube boiler which created such a discussion in naval circles in the 'nineties is generally regarded as being quite a

modern invention, but as a matter of fact Monsieur Julien Belleville had perfected his experiments as long ago as 1855, when the corvette *Biche* was fitted with this novel generator. Unfortunately for its success, it was not possible to obtain solid-drawn tubes in France at that date, and the *Biche* was given welded tubes. These gave a good deal of trouble and were constantly leaking, so that in 1859 the boilers were abandoned and replaced. Monsieur Belleville, however, persisted in his experiments, and at the Paris Exhibition of 1889 had succeeded so well that his model obtained the Grand Prix. Within a few years they were being tried in most of the great navies of the world, and every man-of-war now employs water-tube boilers that are founded upon Belleville's original idea, although they differ widely in minor details.

The First Thames-Built Steamer.

It was not until 1816 that the Thames attempted to rival the Clyde in the construction of steamers, when the little *Regent* was built by Maudsley after the plans of Marc Isambard Brunel. She was of 112 tons burthen and had extraordinarily light engines of 24 horse-power, the idea of cutting down weight being that her speed would attract attention to the Margate excursion service for which she was designed. It is highly probable that her engines were cut down to a dangerous degree of lightness, but no accidents were reported until she was burned off Whitstable some months later.

Early Tugs.

The original idea of the *Charlotte Dundas* (see Vol. III, pp. 228, 236) was to use her as a steam tug, but it was not until 1816 that the general public appreciated the value of steamers for this purpose. Then the Mersey ferry steamer *Charlotte* towed the sailing-ship *Harlequin* to sea and caused quite a sensation. Rennie, the famous engineer, was adviser to the Admiralty in 1819 and after having vainly attempted to persuade them to invest in tugs, he chartered a Margate steamboat at his own expense, and by towing a 74-gun ship against a strong Thames tide he so impressed the authorities that steam was introduced into the British Navy for towing purposes. At about the same time Mr. Joseph Price, a glass manufacturer on the Tyne, having invested a sum of money in a local steamboat concern, and having every prospect of losing it when the steamers failed to attract passengers, persuaded his colleagues to let him use the boats for towing colliers out of the river in foul winds. He did it most successfully, and although he met with very strong opposition from the local foymen and others, his system was eventually acknowledged as a success. In 1821 there were tugs on the Humber, and five years later on the Mersey.

David Napier's Experiments.

Steam navigation in Britain owes much to David Napier, who became interested in the subject, and in order better to study it took passage in one of the sailing packets between Glasgow and Belfast in the worst period of the year. Covered with spray and occasionally by

(*Macpherson Collection*)

THE "VICTORY" AND "FAVORITE," LONDON-MARGATE STEAM PACKETS
(From an Aquatint in Colours by J. Hudson, published 1821)

solid green water, he sat perched in the bow and carefully studied the bow wave. Time and again he went aft and asked the skipper whether the sea might be considered rough, but the seaman was used to that sort of question and every time he answered that he himself would not call it so. Finally he was bound to admit that he had never sailed through a worse night, and to his surprise young Napier expressed himself as delighted, and murmuring, " I think I can manage, if that be all," turned in to search for dry clothes. He was satisfied that the bluff bow of the sailing packet was not the best form of avoiding resistance in a steamer, and accordingly he carried out his experiments with models in a small tank, a system that has now developed out of all recognition, and finally evolved the fine forward lines that were characteristic of all the steamers that he built. The first one was the *Rob Roy*, a little ship of 90 tons burthen, with an engine of 30 horse-power. She came out in 1818, and for two seasons ran between the Clyde and Belfast with considerable success. When she was replaced in these waters by a bigger ship, Napier sent her round to Dover, where she opened the steam service across the Straits, which has since become the most important packet run in the world. To begin with, Napier himself was an engineer and built the engines to be put into hulls of his design, constructed in Clydeside yards.

The First Steam Mail Packets.

In 1821 Mr. William Elias Evans, who had already made a name for himself in the design and construction of steamers, was instructed by the Post Office to build the first two steam packets, the *Lightning* of 205 tons and 80 horse-power, and the *Meteor* of 189 tons and 60 horse-power. They ran between Holyhead and Dublin and were conspicuously successful. The ships were built with fine lines and were noteworthy at that day for their strong construction, which resulted in their lasting very much longer than any of their contemporaries.

Steam Packets for the Mediterranean.

In 1830 it was decided that steamers should be substituted for the sailing packets which maintained the mail service between Falmouth, Malta and Corfu. The average time for the single journey was three months, but when the Post Office steam packet *Meteor* inaugurated the steam service she was back at Falmouth in forty-seven days, and it was the success of these pioneers that caused the Government to pay full attention to the overland route to India by way of the Isthmus of Suez.

The " New Jersey."

The difficulties of 1815 did not put any check on the development of the steamship in the United States, and in November, 1816, the *New Jersey* sailed from New York for Baltimore, under the command of Captain Moses Rogers, who was afterwards to become famous in connection with the *Savannah*. In this ship for the first time efforts were made to lessen the excessive noise which was apparently one of the great disadvantages of the early steamers. Having made her passage

round the coast, the *New Jersey* was put on service between Baltimore and Elkton.

Jonathan Morgan.

One of the most unfortunate American inventors connected with the early development of the steamboat was Jonathan Morgan, a Maine man, who built a 15-ton boat called the *Alpha* and employed her on the Kennebec River in 1816. She is particularly noteworthy as being driven by a screw propeller in the stern, and also for having a wooden boiler built of pine, with an iron fire-box in it. Poor Morgan expected to make a colossal fortune out of this invention, instead of which the local constable sold the boat in June, 1818, for 87 dollars and her machinery being scrapped, she was used for fishing.

Early Russian Steamboats.

It is a curious thing that steam navigation took the fancy of the Russians so early in its history, for they are generally supposed to have been very much behind in matters of development at this time. The fact that the earliest exponent of the system was the Superintendent of Mines and was named Mr. Baird, may be some explanation of this. In 1815 he built an open boat himself, and with an engine of 4 horse-power he made a voyage from St. Petersburg to Cronstadt and back. Next year his ship was very much more ambitious and had an engine of 20 horse-power, carrying passengers regularly between the capital and the fortress. About the same time the Ishora yard built the *Rapid* for the Russian Government with an engine of 32 horse-power, but it was not until ten years later, in 1826, that the Russian Navy built its first steam man-of-war armed with guns. In 1816 Mr. Baird was given the exclusive privilege of owning mercantile steamships in and around St. Petersburg, the monopoly to last for twenty years, and soon the Neva had quite a regular steamship service. At a later date it may be mentioned that in 1843 the steamship *Imperator Nikolai* was put into service on Lake Baikal, and about the same time four steamers are reported as being in operation on the Caspian.

Twenty Knots.

The first steamer to contrive a speed of twenty knots is believed to be the *Oregon*, which was put on the service on the Hudson River in 1846. She was the prototype of the Hudson River steamer as she exists to-day, and in those days, with her burthen of 1,000 tons and accommodation for 600 passengers, with comfortable sleeping quarters, she was regarded as the most wonderful ship afloat.

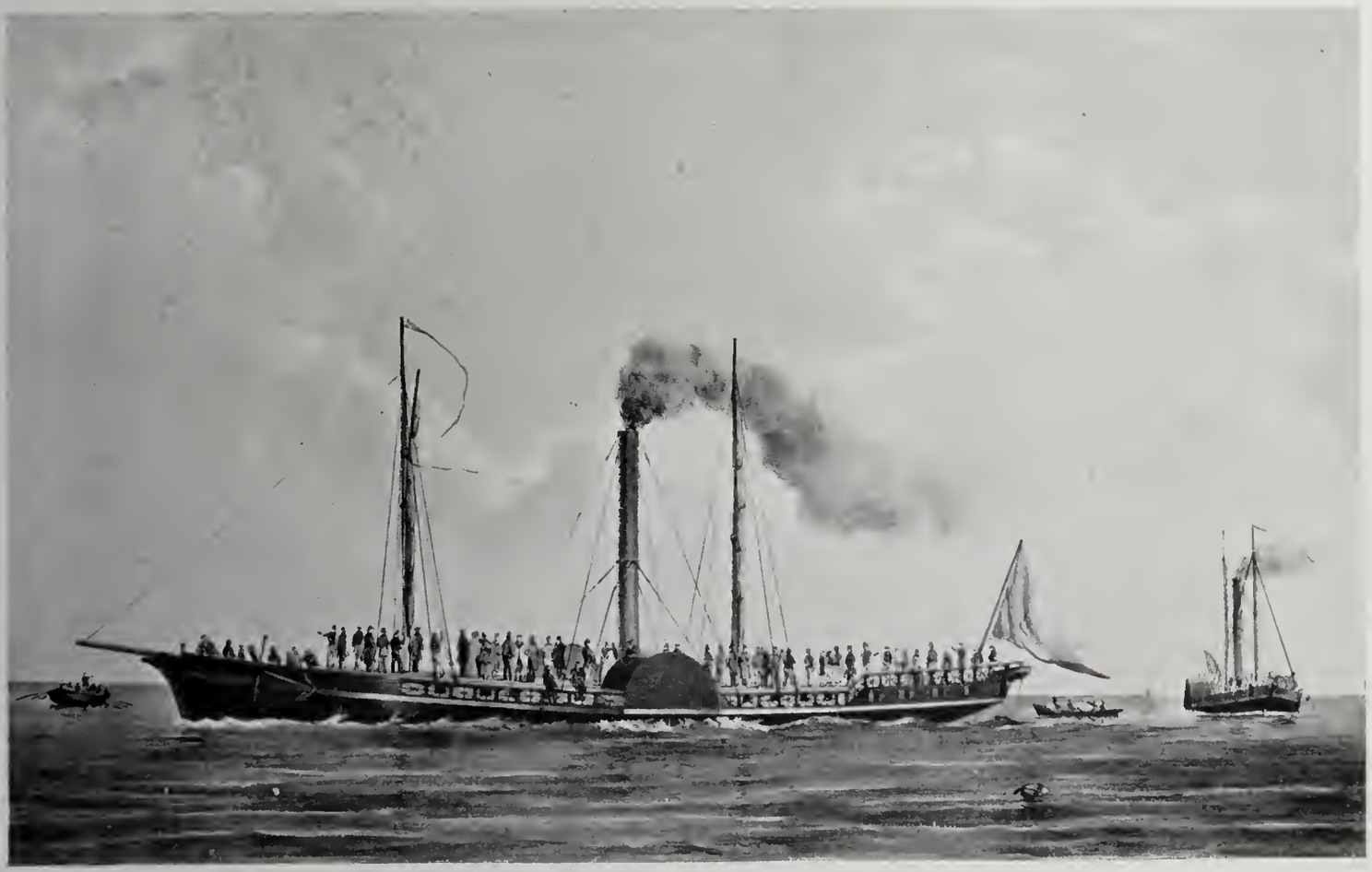
Iron Shipbuilding.

When the use of iron for shipbuilding had been proposed in 1809 its sponsors were laughed to scorn, but in 1818 Clydeside had built the little *Vulcan* and had built her so well that she lasted for sixty years. In 1821 the famous *Aaron Manby* was built, the first iron steamship. Mr. Manby, after whom she was named, and Captain Sir Charles Napier were responsible for her construction. She was built at the Horseley

(Macpherson Collection)

THE P. & O. SCREW STEAMSHIP "HIMALAYA," ADAM KELLOCK, COMMANDER
(From a Colour Lithograph by Dutton, published 1853)

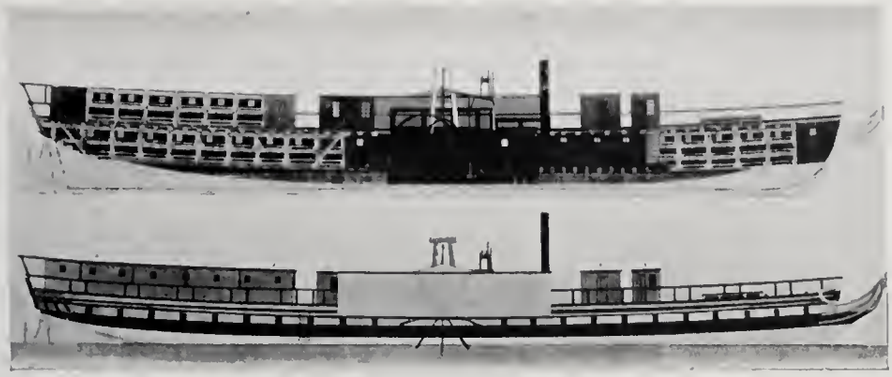
Built for the P. and O. Company, and in her time the biggest steamship in the world, the Himalaya *was chartered as a transport to the Crimea and so impressed the Admiralty that they purchased her. She is still in existence as a coal hulk at Portsmouth.*



(*Macpherson Collection*)

THE FIRST STEAMER FROM MARSEILLES TO GENOA
(From a Colour Lithograph printed by Day & Son)

The Mediterranean offered excellent opportunities for steam navigation and the French and Italians were not slow to take advantage of them.

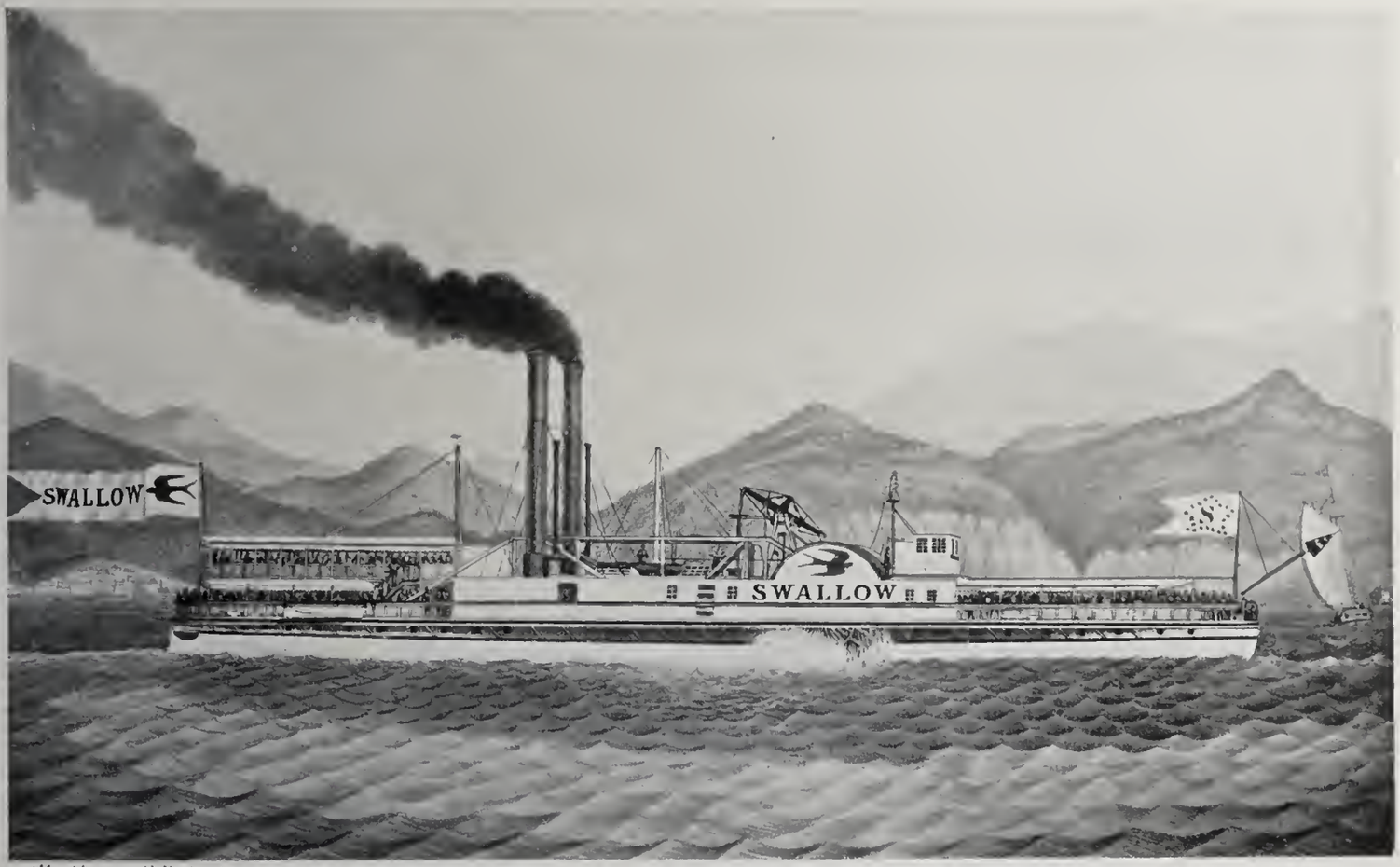


THE "CHANCELLOR LIVINGSTONE"
(From an Aquatint by Abrele after Klinckowstrom, published *c.* 1818)

(Macpherson Collection)

THE "ROANOKE"
(From a Colour Lithograph)

The Chancellor Livingstone *marked a definite step forward in the construction of the Hudson River passenger steamers, with far better accommodation than was offered by the original* Claremont. *The* Roanoke *is typical of the American coastal passenger steamer of the elder fifties. She ended her days as a Confederate privateer, being finally burned by her own people.*



(*Macpherson Collection*)

THE "SWALLOW," NEW YORK ALBANY PASSENGER STEAMER, BUILT 1836
(From a Lithograph by E. W. Clay, published by H. E. Robinson, New York)

Even by the 'thirties the steamer on the Hudson River had become quite an elaborate vessel and the broad outlines of her design changed remarkably little in 60 years. The walking beam of her engine is conspicuous.

(Macpherson Collection)

THE " ROBERT F. STOCKTON," AFTERWARDS " NEW JERSEY," CAPT. ERICSSON, 1839
(From a Lithograph by C. F. Cheffins after a Drawing by J. C. Bourne)

This is the little steamer in which John Ericsson put his patent screw propeller in 1839 thereby making a great name for himself and her.

(*Macpherson Collection*)

SIR MARC ISAMBARD BRUNEL (1769-1849)
(From a Proof Mezzotint by C. Turner after Northcote)

ISAMBARD K. BRUNEL (1806-1859)
(From a Mezzotint, Proof before Letters, by Cousins after Horsley)

The two Brunels, father and son, made a big difference to the progress of steam navigation, and although the latter's Great Eastern *is spoken of as one of the biggest failures in history she was a wonderful vessel.*

(*Macpherson Collection*)

THE U.S. IRONCLAD MONITOR "KICKAPOO," BUILT 1863
(From a Colour Lithograph by Jefferson)

The Kickapoo *is typical of the U.S. monitors built in the latter part of the Civil War, armed with four heavy guns in two turrets.*

(*Macpherson Collection*)

H.M.S. "CAPTAIN," BUILT 1869, LOST OFF FINISTERRE, 7 SEPTEMBER, 1870
(From a Colour Lithograph by Day after Dutton, published 1876)

The disaster of the famous Captain *set people against the turret principle in Great Britain for many years afterwards.*

Ironworks at Birmingham, transported down to the Thames and put together at Rotherhithe. She had a length of 106 feet, a beam of 17 feet, and was propelled by an engine of 30 horse-power. After exhibiting her on the Thames Napier took her across to France where she lasted for many years. There was, however, a very big prejudice against iron vessels which was not dispelled until the *Garry Owen* came out in 1834. She was 125 feet long by 21 feet 6 inches beam, and she had two engines aggregating 90 horse-power. Her builders constructed her infinitely more heavily than was at all necessary, but as it happened this was a lucky thing, for on her maiden voyage she and a number of wooden steamers were driven ashore. All the others broke up but the *Garry Owen* was only dented and came home under her own steam. That fact made people take notice of her and led to iron construction being given a very much fairer trial than it would otherwise have obtained.

Early Iron Armour.

In the early 'forties Mr. Delmeno carried out a number of experiments in the United States to prove that iron plates made excellent protection, and the British Admiralty became sufficiently interested to order a similar set of experiments in 1842. These experiments, however, had to contend with a good deal of bigoted conservatism and it was reported that they were not of the least use as protection, and that even if they were they would so overweight the ship that she could not possibly sail or steam. However, the Admiralty was not quite satisfied to accept these reports as they were, so that in 1846 the iron steamer *Ruby* was used as a target. The fact that shell went clean through her was probably due to the small size of the ship, which was only 73 tons burthen. At this time it was constantly alleged against iron ships that the side, when struck by a shot, split up into small pieces and langrange was scattered over the deck in dangerous quantities. When in 1850 further experiments were carried out rather more carefully on shore, the targets being made to represent the side of the steam frigate *Simoon*, they were very much more satisfactory, although not so striking as to overcome naval objections.

The Genesis of the Ironclad.

During the Crimean War Captain Cowper Coles, who was afterwards to come into such prominence by his plans for turret battleships, built the raft *Lady Nancy*, which mounted a 68-pounder gun and did exceedingly useful work. Her arrangements, however, were very elementary and were so obviously capable of improvement that Lord Lyons sent her inventor home to devise a means of mounting and training heavy guns, and in this way the turret ship came into existence.

The Three Types of Ironclad.

At the beginning of the American Civil War, the U.S. Congress appointed a board of naval officers to go into the question of ironclad men-of-war. Frankly they were not enthusiastic, the gist of their report

being that for coastal and harbour defence ironclads would certainly be formidable auxiliaries to land fortifications, but at sea they doubted if they would ever be any good. However, they examined seventeen plans and finally decided to adopt three. Mr. C. S. Bushnell submitted a plan that was carried out as the *Galena*, Messrs. Merrick and Sons of Philadelphia had the idea of the *New Ironsides*, and John Ericsson built the famous *Monitor*. As a matter of fact, it is worth noting that the plans for this vessel were submitted entirely through the patriotism and generosity of Mr. Bushnell, who went to New York to consult Ericsson, who had not entered into the competition. While they were discussing the plans of the *Galena*, Ericsson showed him the model of the *Monitor* that he had constructed for Napoleon III but which was not adopted. Bushnell immediately persuaded him to submit this design, although he knew that it was in rivalry with his own plan, and it was this unselfish attitude that resulted in the construction of what has been described as the grandmother of the modern battleship.

The Kinburn Batteries.

When the reduction of Sebastopol had proved very much more difficult than was anticipated, and when it was obvious that the fortress of Kinburn would have to be attacked next, both British and French Admiralties set themselves to design a new ship that would be effective for bombarding the works. The Emperor Napoleon III was strongly in favour of an armoured gunboat, and so in March, 1855, the *Tonnant* was launched, the first ironclad in Europe. She was one of a class of five, of 1,400 tons displacement. They were very heavily built of wood, their oak sides being eight inches thick, while outside this was four and a half inches of iron. They had engines but they could scarcely steam and were really floating batteries and nothing more. By mooring them at an angle to the Russian works in order to reduce the area of their vulnerable gun ports they did magnificent service at 800 yards range, and immediately the British Navy set to work to follow the French example by laying down a similar class. They were not, however, finished in time for the war.

" La Gloire " and H.M.S. " Warrior."

In 1859 the French Navy brought out an epoch-making vessel designed by Dupuy de Lôme, one of the greatest naval architects that ever lived. She had been laid down as a 90-gun line-of-battle ship, but she was launched as the 60-gun armoured frigate *La Gloire*, the first seagoing ironclad. She had a displacement of 5,650 tons and her water-line was protected by iron up to four and three-quarter inches thick. Her central battery was also protected with similar plates, while she was capable of a speed of nearly 13 knots.

The British Admiralty immediately responded by laying down the famous ironclads *Warrior* and *Black Prince*, two of the most sightly vessels ever put in the water, with their long slipper stems which concealed, however, formidable rams. These ships had a displacement of 9,200 tons, mounted forty guns when they first went into commission,

(Macpherson Collection)

H.M. IRON CASED SCREW STEAM FRIGATE "WARRIOR,"
40 GUNS, 1250 HORSE POWER, BUILT 1860.
(From a Colour Lithograph by and after T. G. Dutton)

and were capable of a comfortable fourteen knots. They were armoured with four and a half inch iron, but it has to be admitted that in this respect they were far inferior to the French *La Gloire*, for their iron only covered a short length of water-line and left their ends and steering gear absolutely unprotected. They gave naval architects exceedingly useful data on which to base their subsequent designs, however, and as for their construction it is sufficient to say that although *La Gloire* was broken up in 1883 the *Warrior* is still in existence and is on the sale list only because the Admiralty has removed the torpedo school to shore quarters. As far as her hull is concerned she appears to have an indefinite life, while the contractors who broke up the *Black Prince* in 1923 had considerable difficulty in getting her stout hull to pieces. These two ironclads were followed by a number of other broadside ships.

The Converted Ironclads.

After the *Warrior* and the *Black Prince* had made it very evident that the ironclad was the ship of the future, the British Government determined to experiment with a number of the finest wooden ships that it possessed. 91-gun ships of about 3,700 tons by the old measurement were given armour 4½ inches thick and armed with 24 7-inch muzzle loaders. Their best speed was about 12 knots. The first five that were converted showed that the job could be done, and accordingly two or three others were similarly converted with rather thicker armour and rather more powerful engines, but it was only to find that the weight of the iron was too much for them and they speedily racked themselves to pieces. One ship was treated in a very interesting manner, however, the 131-gun ship *Royal Sovereign* that was built in 1857. When she was launched she was a stately four-decker, but the Admiralty in 1862 decided to utilise her to try the turret system of mounting guns, and accordingly she was cut right down and armed with five 9-inch guns, two in the foremost turret and one in each of the other three. She was given a colossally tall funnel and three masts which all raked to different degrees, so that she was one of the most phenomenally ugly ships that had ever put to sea. At the same time the Admiralty employed the French idea of building wooden ships with iron armour, and although they were rather more successful than the converted vessels they gave a lot of trouble.

The Luckless "Captain."

The British battleship *Captain*, which is principally remembered by her tragic end, was built at Birkenhead in 1869, the Admiralty finally giving way to popular agitation in favour of Cowper Coles's turret system. Unfortunately all sorts of people had a say in her design, with the result that instead of having 8 feet 6 inches of freeboard she put to sea with under seven feet, while the old school of naval officer insisted that she should be heavily rigged with yards on all her three tripod masts. The result of this was that she capsized in quite a moderate storm off Cape Finisterre in 1870, Cowper Coles and all but eighteen of her crew of 475 losing their lives in the disaster. She was under the command of

Captain Burgoyne, V.C., and it is noteworthy that through the same gale that wrecked the great battleship his father crossed the Channel in a tiny yacht named the *Gazelle,* with the refugee Empress Eugénie as passenger.

The American Steam Frigates.

It is impossible, owing to limitations of space, to describe all the interesting ship types which were evolved during this period of rapid development, but no survey of the period can be made without some mention of the big American steam frigates which were launched in the middle of the nineteenth century. They were the counterparts of the big frigates that had done so well in the war of 1812, and although there is no doubt that some of them were unwieldy and really too large to be constructed of wood, some magnificent vessels of this type were built which were the envy of European Navies for many years afterwards. The American Civil War, however, showed that they were seldom really as useful as the more moderate and less expensive steam sloops.

CHAPTER II—THE EUROPEAN NAVIES

The Bombardment of Algiers.

The first operation of importance that the British Navy undertook after the end of the Napoleonic War was the bombardment of Algiers in August, 1816. The British fleet was sent out from Plymouth under Admiral Lord Exmouth; in Gibraltar it met a Dutch squadron which requested permission to co-operate. The combined fleets demanded the freeing of a number of Christian slaves and the reimbursement of moneys which had recently been paid as ransom; also the liberation of Mr. McDonell, the British Consul, who had been imprisoned by the Dey. The port was heavily defended with batteries mounting over a thousand guns; the attacking fleet consisted of 19 British and 6 Dutch vessels, while the Algerines also had 9 men-of-war and 30 odd gun-boats. Exmouth in the *Queen Charlotte,* approached close inshore with the remainder of the fleet following him, and opened fire at convenient range. Boats from the fleet added to the attack by setting fire to such enemy ships as they could reach, but at the same time the batteries gave the fleet a very warm reception. By nightfall the town was burning fiercely and the fleet withdrew, closing in at daylight and renewing the demands of the previous day. There was no need to continue the bombardment; the demands were immediately satisfied. Over a thousand slaves were released, a large sum of money paid in ransom was restored, and the British Consul was released with an apology and an indemnity of 3.000 dollars. The British fleet had over 800 casualties and the Dutch 50 odd more, while the enemy suffered terribly. For this success Exmouth was promoted to the rank of Viscount, but it certainly did not put an end to slavery or piracy from Algiers, and it was not until the French conquered the district that the scourge of the Mediterranean disappeared.

(Macpherson Collection)

THE QUARTER-DECK OF THE "QUEEN CHARLOTTE," LORD EXMOUTH'S FLAGSHIP, AT THE BOMBARDMENT OF ALGIERS, 1816

(From an Aquatint in Colours published December 1st, 1816)

Trouble in China.

In the same year Lord Amherst's Embassy to China, escorted by the 46-gun frigate *Alceste* and the 10-gun *Lyra*, was received with insults, and Captain Murray Maxwell, of the *Alceste*, determined to take a firm stand. He therefore ran up the Canton river without a pass, and although he was received with a heavy fire he got through with comparatively little damage after having given quite as much as he got. Unfortunately, the *Alceste* was wrecked on her way home, when Maxwell further proved his ability by constructing a fort and holding off the hostile Malays until he was relieved by one of the East India Company's ships.

Further Trouble with Algiers.

Early in 1824 there was further trouble with the Dey of Algiers, who fitted out pirate cruisers and again insulted the British Consulate. Captain Sir Robert Cavendish Spencer, with two ships, went in and demanded satisfaction, but, getting none, took away the Consul and his family. Going out, they were attacked by the 20-gun Algerine corsair *Tripoli*, which was soon silenced for her temerity. A blockade of the Algerian coast was then established and preparations were being made for a second bombardment when the Dey surrendered.

The First Burmese War.

In 1824 trouble broke out in Burma, where the natives had for some time been getting more and more aggressive and had attacked numerous British posts. The East India Company determined to put an end to the trouble with naval and military assistance, Commander Frederick Marryat, the novelist, in the 20-gun *Larne* taking the lead. He purchased the small paddle steamer *Diana*, which did very useful work. The naval force was steadily increased both by Royal and Company's ships. After initial successes the lack of reinforcements caused heavy losses in the expedition, losses that were increased by cholera. The Burmese defence caused the collection of quite a big naval force, which eventually worked up the Irrawaddy, and finally a peace treaty was signed early in 1826. Sir James Brisbane won the thanks of Parliament by his handling of the naval force.

Navarino.

The whole of Europe was greatly inconvenienced by the efforts of the Turks to put down the Greeks in their fight for freedom, while civilisation was disgusted at the brutality of the conquerors. At the end of 1826 Vice-Admiral Sir Edward Codrington was appointed Commander-in-Chief of the Mediterranean. In consequence of Turkey refusing to sign the armistice, he gave orders that no military stores to be used against the Greeks should be allowed to pass overseas, which soon induced the Turks to agree to sign. They had a fleet in Navarino Bay, in Messenia, partly Turkish, partly Egyptian, and Sir Edward Codrington made it his business to watch this force. He was joined by a French force under Rear-Admiral Henri de Rigny, and a Russian

squadron under Count Heidin. H.M.S. *Dartmouth*, 32, was put to watch the Turkish fleet, while the main squadron withdrew. Soon afterwards the Turks attempted to make their way to Patras, but were turned back by the Allies. The same thing occurred a second and a third time, while great indignation was caused by the Turkish troops landed from the fleet laying waste the Morea. This determined Codrington to take his fleet into Navarino Bay itself in order to be in a position to make sure that the Turks kept their word. The enemy fleet consisted of 65 sail, while Codrington had with him 12 British, 7 French and 8 Russian ships. A Turkish officer who attempted to instruct Codrington to put back to sea was told: "I am come not to receive orders but to give them, and if any shots be fired at the Allied fleet, the Turkish fleet shall be destroyed." The Allies advanced quite coolly, but it was not long before the Turks opened fire and in a very short time the action was general between the two fleets. Codrington's flagship, the 84-gun *Asia*, was soon in action with the Turkish flagship. The Turks resisted as well as they could, and certainly behaved with the greatest gallantry, but they were hopelessly outmatched, with the result that at the end of the day they had lost a ship of the line, twelve frigates, twenty-two corvettes and twenty-five small craft, without doing very much damage to the Allies. Since those days a legend of a great treasure at the bottom of Navarino Bay has sprung up, apparently without the least foundation. Unfortunately, political considerations caused the Navy to be blamed for this action.

The French Navy in Algeria.

The trouble which led to the French conquest of Algeria really arose in the revolutionary days, when a dispute occurred concerning corn imported into France, but it came to a head in April, 1827, when the French Consul at Algiers, M. Deval, interviewed the Dey to protest against the seizure of two Roman merchant ships which were sailing under French protection. The Dey first insulted him and then struck him, with the result that M. Deval was immediately recalled, but no definite steps were taken until two years later when an ultimatum was presented by the French flagship *La Provence*. The Dey not only refused to consider the document but opened fire while she was flying the flag of truce. Accordingly it was determined to take definite measures, but as the trade of Algiers was almost entirely inland the blockade that was instituted could do but little good, especially owing to the constant bad weather on the coast and the difficulty of finding protective harbours.

M. D'Haussez was the Minister of Marine and immediately set about making his preparations, but the service in general was against the venture and some Admirals went so far as to say that there was not a single flag officer who would not refuse such service. While military preparations were being made the coast was blockaded and during a gale in May, 1830, the frigates *Aventure* and *Silène* drove ashore, the majority of their crews being murdered in cold blood by the Arabs and the remainder led away to slavery.

Transporting the French Army.

By the nature of things the function of the Navy in the Algerian campaign was principally to transport the Army and its stores, and for this purpose a fleet of 103 men-of-war and 557 chartered merchant ships were collected under the command of Admiral Duperré. It sailed at the end of May, 1830, but was immediately dispersed by a gale, and an effort was made to collect it in the Balearic Islands. General De Bourmont was in command of the land forces, although his conduct at the Battle of Waterloo still rankled in French opinion. Finally, after a good many difficulties the Navy contrived to land its force in Sibi Ferruch Bay, not far from Algiers, but no sooner was the operation concluded than a fierce gale drove the fleet offshore. However, Duperré collected it again and recommenced the bombardment of the Arab batteries and positions, while the Army gained a signal victory and had no difficulty in investing the city. Within a few hours of the capture of the fortress a steam frigate arrived with the news that a new revolution had broken out and that King Charles X had been deposed. So the white flag with the golden fleur-de-lys was hauled down and replaced by the tricolour. General De Bourmont realised that his position would be very uncomfortable under the Republic and accordingly begged Admiral Duperré to lend him a frigate to transport him to Italy. After that the Navy was employed keeping the Army in Algeria supplied and reinforced, a duty which was detested by all hands and which did a lot of harm to the morale of the Force as well as robbing it of opportunities of professional improvement.

The French at Constantinople, 1834.

While the French Army was having to fight for its position in Algeria it was anticipated that there would be a good deal of trouble from the Turks, who were still nominally overlords of the country, although they had failed to exercise their power in any way. Accordingly, in 1834, a French fleet was sent to Constantinople to convince the Sultan that any interference with France's aims in Algeria would be a mistake. They were quite successful in this, and the nett result of their conquest was that the Barbary Corsairs, which had preyed on European commerce since the Middle Ages, were suppressed once and for all, and no further trouble was experienced with them.

The Prince de Joinville.

It was not possible for France to content herself with only a small portion of the North African coast, and before long she was forced to take an active interest in Morocco in order to protect herself in Algiers. Accordingly, in 1844 her troops were fighting hard there and the fleet under Admiral the Prince de Joinville, the son of Louis Philippe, was doing very good work on the coast. He bombarded Tangier and then Mogador and all the while he maintained a very strict blockade which prevented the sinews of war arriving from overseas.

Cochrane in Greece.

Unfortunately Lord Cochrane was never the man to learn and despite his disappointments in South America, which will be described later, he agreed in 1826 to take command of the Greek Navy, one of the most foolish of the many foolish acts of his life. The Greeks were supposed to be fighting the Turks, but Cochrane could never get any fight out of the men under his command, who behaved far worse than any South Americans. He retained this position until 1828, when it was obviously quite hopeless to do anything with the material in hand, and he then returned to England. Four years later he was reinstated in the Royal Navy as Rear-Admiral and at the same time he was granted a free pardon for the crime that he had not committed.

The Blockade of the Dutch Coast, 1832.

In the latter part of 1832 Holland offended both France and Britain by her attitude towards the problem of Belgium, and finally ordered all British and French ships to quit Dutch ports within three days. This was rather more than William IV and Louis Philippe could stand, with the result that the British Experimental Squadron, reinforced by certain ships and operating in conjunction with a French force, blockaded the coast of Holland and laid an embargo on Dutch shipping. When the French captured Antwerp at the end of 1832, the Dutch resistance collapsed and the squadron was recalled, such ships as had been detained being liberated.

Dom Pedro in England.

In addition to enlisting the services of various British naval officers, Dom Pedro, Emperor of Brazil, employed British shipping very considerably in his attempt to secure the throne of Portugal for his daughter, Donna Maria. One British ship, the *Rival*, which is very loosely described as a steamer and a brig, foundered in Galway Bay, with the loss of all hands, nearly 500 lives, when she was carrying Scottish volunteers to Oporto. The *Lord Blaney*, of the St. George's Steam Packet Company, was chartered, and 200 British seamen were shipped on board her under false pretences. As soon as they discovered that they were practically " shanghaied " for the purpose of manning Dom Pedro's fleet and not for transport purposes at all, they broke out into mutiny, and finally forced the captain to put into Milford Haven, where they landed in a body and caused a good deal of diplomatic bother. Captain Sartorius, R.N., commanded Dom Pedro's fleet in 1832.

Napier in the Portuguese Navy.

When Sartorius returned to England in 1832 he was succeeded by Captain Charles Napier, C.B., who succeeded him in the command of the naval forces which Dom Pedro had raised, and took with him a number of British naval officers for whom the Navy had no further use. He flew his flag in the 46-gun frigate *Rainha de Portugal*, with a command consisting of one 50-gun ship, one 20, one 18, and a number of minor craft and steamers. The force under Dom Miguel was very

(*Macpherson Collection*)

THE BOMBARDMENT OF ALGIERS, 1816

(From a Colour Aquatint by J. C. Stadler after P. H. Rogers, published February, 1818)

Exmouth's bombardment of Algiers destroyed the power of the Barbary corsairs for some time, but it was not long before they were just as troublesome, and it was not until the French conquered the country that they were suppressed.

(*Macpherson Collection*)

ADMIRAL VISCOUNT EXMOUTH (1757-1833)
(From a Proof Mezzotint by C. Turner after Sir W. Beechey, R.A., published 1818)

An officer with a magnificent reputation in the Napoleonic Wars, it was his bombardment of Algiers that gave Exmouth his real chance.

(Macpherson Collection)

THE BATTLE OF NAVARINO, OCTOBER, 1827

(From a Colour Aquatint by Smart & Pyall after Drawings by Sir J. T. Lee, Contemporary)

The Allies' insistence that the Porte should observe the clauses of its agreement led to the destruction of the Turkish Fleet and quite recently to wonderful stories of treasure sunk at the bottom of Navarino Bay.

(*Macpherson Collection*)

THE DEFEAT OF DON MIGUEL'S SQUADRON OFF ST. VINCENT, JULY 5, 1833
(From a Colour Aquatint by Duncan after W. J. Huggins, published June 10, 1833)

The Captain, who was afterwards to be Admiral Sir Charles Napier, took command of an inefficient Portuguese force, its men half naked and undisciplined, and defeated the superior fleet of Don Miguel.

much more powerful and included ships of the line, as well as being infinitely better found in every way. In spite of this, Napier went in search of his enemies and came into contact with them off Cape St. Vincent on July 5th, 1823. The flagship captured the 74-gun ship *Nao Rainha* and the 42-gun *Donna Maria* captured the 56-gun *Principezza Reale*. The whole fleet was taken by a force half its size, and this victory led to the collapse of Dom Miguel. In October, 1834, Napier returned to England, and although his name had been removed from the Navy List, it was restored two years later.

An Incident on the Canton River.

In 1834 five ports in China had been opened to trade, one of the most important being Canton. Later in the year it became necessary for H.M. frigates *Imogene* and *Andromache* to visit Canton, but in the Bocca Tigris the Chinese forts, apparently having the British ships at a disadvantage within very close range, opened fire on them. The British ships replied with such good effect that the works were entirely silenced, and as the price of their failure the officials responsible were disowned by the Chinese Government and severely punished. It was, however, only a symptom of the general unrest that was being felt in the whole of China against the foreigner, and things were always unsatisfactory until the war of 1840 cleared the air. In this action the commander of the *Imogene* was Captain Price Blackwood, who was afterwards Lord Dufferin, and of the *Andromache*, Captain Henry Ducie Chads, who afterwards made a great name for himself in the service.

The Capture of Aden, 1839.

However unpleasant it may be as a military station, Aden is undoubtedly one of the most important British posts on the lines of communication. It was added to the British Empire in 1839 as a consequence of the local authorities refusing to abide by the agreement that they had made with the British Government. Considering that it was safe to defy the British, they fired at the East India Company's ship *Coote*, but in a very short time H.M.S. *Volage* appeared off the port with a transport fleet, one or two John Company's ships and mortar boats. Captain Henry Smith was in command, and, receiving no reply to his demand for satisfaction over the broken agreement, he commenced a bombardment. The Arab gunners manned their defences gallantly, but they were gradually hammered to pieces by the British fire, under cover of which a force was landed to take possession of the town. It was afterwards formally handed over to the East India Company and has since proved invaluable both to the British Navy and to the merchant ships of all nations.

The Opium Trade.

Meanwhile, trouble was brewing in the East, for after legalising the opium trade from India by means of a fixed tariff, the Chinese Government in 1820 suddenly forbade the importation of the drug. It made not the slightest difference to the traffic, for the mass of China-

men were always willing to buy, and the greater number of the local mandarins were interested in the trade, so that they took very good care that opium was run in. In 1838 the Chinese authorities made a determined attempt to enforce their law, and seized a British ship. This was carried out in the most objectionable manner possible, and there is no doubt that a good many Chinamen were attempting to pick a quarrel. Captain Charles Elliot, R.N., who was then Chief Superintendent of the British Board of Trade in China, had the control of affairs. In a very difficult situation he did his utmost to maintain relations and succeeded in preserving national dignity. The Chinese, especially Commissioner Lin, the Governor of Canton, caused more and more trouble, however, and finally got so confident of their ability to oust the hated foreigners that they erected batteries opposite Hong Kong, where most of the British shipping which had been expelled from Chinese ports was gathered. Captain Elliot finally decided to make this port his headquarters, and from there Captain Smith of the *Volage* was obliged to take forcible measures to maintain open communications.

The First China War.

The Chinese fleet was in the command of one Admiral Kwan, who, when he felt that he was strong enough to defy the British naval authorities on the spot, became insulting, and finally, on November 3rd, 1839, attacked H.M. ships *Volage* and *Hyacinth* with 29 war junks. The reception that they got surprised them, but Captain Elliot intervened in their favour, and as a result the affair was claimed as a great victory for the Chinese. After this preliminary skirmish the Chinese strengthened their defences and collected their resources all through the winter and spring, but in the meantime the British Admiralty had become alive to the possibilities of the situation and had very strongly reinforced the British squadron in China, while at the same time a considerable military force was sent out. The Canton river was blockaded and there were several actions between the British ships and Chinese junks. Meanwhile, the enemy discovered that, if only they kept on discussing matters at infinite length, they could commit outrages with impunity and they continued to do so until finally the British lost patience. Hong Kong was then formally annexed as a convenient base and matters became serious.

The Chuenpee Fort.

In January, 1841, it was decided to put an end to all this palavering, and accordingly a force of Royal Marines and infantry, supported by a number of warships, commenced to reduce the forts which protected the channel to Canton. In these operations the East India Company's steamer *Nemesis*, the first man-of-war to be built of iron, distinguished herself very greatly with her guns and rockets. Unfortunately, Captain Elliot took too much for granted and recommenced negotiations with the Chinese before he had utterly destroyed the whole of their defensive works, with the result that they adopted their old tactics and kept him talking while they brought up fresh troops. This led to further fighting,

further negotiations, further trickery, until at last it became necessary to attack Canton. Once again Captain Elliot listened to Chinese talk and retired from the city very easily satisfied, making it necessary to start operations all over again. In the spring of 1842 the Chinese felt themselves strong enough to attack, which they did with great vigour, but by that time the British had been strongly reinforced and were able to beat them off.

The End of the China War.

Unfortunately, the British commanders had not the resources to follow up their successes, but it was realised that it was necessary to penetrate into the heart of China in order to make a really deep impression, and accordingly it was determined to carry out an expedition up the Yangtse Kiang. The first point to be attacked was Woo Sung, which was very strongly protected but which fell after a particularly dashing action. It is interesting to note that at Woo Sung the conquerors found two junks fitted with four paddle wheels each, worked by hand power. All the way up the river the fleet and transports were attacked, but the resistance put up was not nearly as determined as it had been on the coast, and the fleet, with 9,000 troops to back it, proved irresistible. Progress, however, was very slow and apt to be very discouraging. The fact that the British were able to strike so far from the sea, however, made a tremendous impression on the Chinese mind so that when Ching-Kiang was captured and preparations were made to take Nanking, the Emperor treated for peace. This peace was finally signed in the cabin of H.M.S. *Cornwallis*, and by it China agreed to pay an indemnity of 21,000,000 dollars, to open Canton, Amoy, Foochow, Ningpoo and Shanghai to British trade, to withdraw the boycott of Chinamen who had held intercourse with the British, to cede Hong Kong to Britain in perpetuity, and to permit the occupation of certain strategic points until the terms of the treaty were fulfilled. Had Elliot only realised the manner in which he was being out-manœuvred by the Chinese, this war might have been ended very much sooner.

The Syrian Campaign.

The trouble in Syria arose through Mehemet Ali, the most powerful of the numerous vassals of the Sultan of Turkey, deciding that the Porte was effete and powerless and determining to make himself an independent monarch by seizing Egypt. This he did and then encouraged his son, Ibrahim Pasha, to invade Syria, which he did with good success until the Russians came to the assistance of the Sultan and checked his advance. A peace was then patched up, but Mehemet Ali was still powerful and truculent and soon put the Sultan into such an awkward position that it was decided either that naval operations had to be undertaken or else that the British had to stand aside and see Turkey come entirely under the influence of Russia. Accordingly, the British and French squadrons united, and, under the command of Admiral Sir Robert Stopford and Rear-Admiral Lalande, went East to undertake combined operations. In July, 1840, however, the French withdrew

from the Entente, and for a time it looked as though a general European war was imminent. In August, 1840, the great powers offered Mehemet Ali certain territory for life if he would withdraw from the greater part of the country that he had occupied from the Turks—if not, they would turn him out of all of it. Captain Charles Napier, who has already been mentioned, was made Commodore of the Eastern division, and when Mehemet Ali declared that what he had won by the sword he would maintain by the sword, Napier collected his force of four line-of-battle ships, a frigate and a 6-gun paddle sloop, and made for Beyrout. His force was quite insufficient to tackle the big Egyptian force ashore, but it was sufficient to prevent it getting help from Alexandria, and when Sir Robert Stopford came to take charge of operations with an Anglo-Austrian squadron, Napier, who had already seen considerable land fighting in Portugal and was not of a nature to serve under any superior, begged and obtained permission to land and take charge of operations ashore.

Sidon.

With his extraordinarily heterogeneous army of Englishmen, Austrians and Turks, together with a considerable contingent of local brigands, Napier landed at D'joumie Bay, nine miles north of Beyrout, after drawing off the Egyptians by a clever feint to the southward. Admiral Stopford several times made up his mind to recall his brilliant but very embarrassing subordinate, but every time he was talked over by Napier, who finally persuaded him to give permission to attack Sidon on condition that he was back with the fleet within forty-eight hours. Sidon was well protected and was the central depot for the Egyptian Army, so that any officer less good-naturedly plastic than Stopford would have banned the project as impossible without more ado. However, Stopford consented, and Napier, with the assistance of the fleet and after considerable losses, contrived to capture the position with practically the whole garrison. Napier himself was one of the first men into the breach in the walls of the town, and turned up in the fleet within the stipulated time, followed by 400 prisoners. He was then to be relieved of his duties ashore by Sir Charles Felix Smith, but he had not the least intention of being relieved and by direct disobedience of orders and the most reckless courage in face of what seemed to be a certain defeat, he won a striking victory and brought about the surrender of practically the whole Egyptian army.

St. Jean d'Acre.

The next position which Napier determined to capture was St. Jean d'Acre, a colossally strong position which the Egyptians had been strengthening for several years. Admiral Stopford was inclined to be doubtful as to the wisdom of attacking such a formidable fortress, but his orders from home gave him little choice and Napier of course was always urging him on to attack. In addition to the strength of the town and its defences, it had the advantage of a big shoal off shore, and the Egyptians had quite made up their minds that the British fleet would

(*Macpherson Collection*)

SIR CHARLES NAPIER (1786-1860)
(From a Mezzotint, Proof before Letters, by W. Carlos after T. M. Joy)

Erratic, insubordinate, and headstrong, Sir Charles Napier made a great name for himself as a sailor, a soldier and a filibuster, and his career is one of the most extraordinary stories in British naval history.

THE FLEET GOING INTO ACTION AT ST. JEAN D'ACRE, NOVEMBER, 1840
(From a Colour Aquatint by W. Knell after a drawing by F. K. Hawkins of H.M.S. "Pique," published July, 1841)

The French had already used steam men-of-war in their operations on the Algerian coast, but St. Jean D'Acre was the first occasion on which they were employed in the British navy.
(From an Impression lent by Messrs. T. H. Parker)

(*Macpherson Collection*)

THE EAST INDIA COMPANY'S IRON STEAMSHIP "NEMESIS" DESTROYING CHINESE WAR JUNKS, 1841

(From an Aquatint in Colours by and after E. Duncan, published by Fores, 1843)

Foredoomed to failure by the pessimists, the Nemesis proved herself a formidable fighting vessel and was an unqualified success.

(*Macpherson Collection*)

WILLIAM PITT, EARL AMHERST (1773-1857)
(From a Mezzotint by C. Turner after Sir T. Lawrence)

It was Amherst's diplomatic work in China which laid the real foundation of British trade in the Far East.

not venture inside this shoal. As soon as the action commenced, the smoke hung heavy over the sea, so that the defenders did not note that the British had come right inside and, having laid their guns for a set range, practically all the shots went overhead. After the bombardment had gone on for some time a lucky shell blew up the main magazine of the town, wrecking a large number of houses and killing something like 1,500 men. Apart from this the Egyptian losses were very heavy, while the fleet only sustained 60 casualties killed and wounded. Had the Egyptians not made their mistake over the range, however, it is quite likely that many of the ships would have been blown out of the water. As a result of this victory and the subsequent pursuit of the Egyptians, Napier had the audacity to conclude a peace with Mehemet Ali which provided that the Egyptians should evacuate Syria, that he and his successors should rule in Egypt and that the Turkish fleet should be restored. The ambassadors all tried to upset this treaty, but it was on the grounds of sound common-sense and was subsequently ratified. As Napier wrote to his wife, he had been Lord High Admiral, Commodore and General, and for his power of negotiation he stood the chance of either being hanged by the Government or made a bishop.

Cartagena, 1842.

During this period the British Navy were kept very busy all over the globe, and in February, 1842, the pirate state of Cartagena in Central America gave trouble by seizing and plundering two British ships. H.M. Brig *Charybdis*, under the command of a lieutenant, appeared off the port and demanded satisfaction. Receiving an insulting letter from the Governor, and at the same time hearing that he was beginning to shoot the prisoners that he had taken, Lieutenant Michael de Courcy determined to tackle the whole Cartagenan fleet, although his ship only mounted one long gun and two carronades. The result was that he captured a corvette, sank a brig, and then received the tame surrender of the rest of the fleet. His action made a great difference to British prestige in those waters.

The Naval Panic of 1850.

In 1850 Sir Francis Head published a book called " The Defenceless State of Great Britain," which aroused great interest at the time. It was nominally a novel, but it contained a lot of home truths about the British Navy which could not be denied and which showed that it was not in any way as superior to that of France as had been imagined. It caused a great discussion at the time, and two years later the Naval Estimates showed the public feeling that had been aroused. The Russian War of 1854, however, not only made people forget the scare that this book had aroused, but it did far more than any book could ever have hoped to do in making the public realise the state of the Navy. However, after the war, the country again dropped into contented satisfaction, and it was not until the French brought out their famous ironclad *Gloire*, against which the British had nothing really comparable, that naval affairs were taken in hand in earnest.

The Outbreak of the Crimean War.

It is not necessary to deal with the outbreak of the Crimean War in this history; it is now realised that it was a mixture of mistaken British policy, French ambition and a hazy and ill-informed desire to guard the holy places in Palestine by people who knew little or nothing about the true state of affairs. Before the public knew just what was happening the country, in alliance with France and Turkey, had been plunged into a war with Russia. Vice-Admiral James Dundas was in command of the Mediterranean fleet, with his flag in the 120-gun ship *Britannia*, and before the actual declaration of war he joined the French squadron under Vice-Admiral de Lassusse, who was almost immediately replaced by Vice-Admiral Hamelin. The fleets joined in Besika Bay and were then invited by the Ambassadors at Constantinople to proceed to the city. Turkey had already declared war on Russia in consequence of the latter's invasion of the Danubian provinces.

Sinope.

With the Allied fleets at Constantinople it was not likely that the Russian Navy would attack the capital of Turkey, although she was not yet at war with France and Britain. Austria and Prussia were undecided as to which side they would take, and while they maintained this attitude Britain was in no hurry to commit herself. Omar Pasha was advancing steadily in what is now Serbia, while the Turkish Army in Asia Minor was being starved. Accordingly, the Porte sent the Turkish fleet, under Vice-Admiral Osman Pasha, to victual it. They were in very bad condition and were certainly in no state to meet the Russians, while Vice-Admiral Nakhimoff at Sebastopol saw their condition and determined to attack. Osman Pasha was no seaman and took no precautions when he saw the Russian scouts surveying the position and as the Allies were not allowed by their orders to go further than Constantinople he was helpless when the Russians appeared off Sinope, where he was anchored with six big ships, two frigates and three steamers. The Turkish fleet had no chance from the very beginning, but they fought with the greatest gallantry until the entire squadron was wiped out with practically no damage to the Russians, Osman Pasha being taken prisoner mortally wounded. That action determined Great Britain and France to throw in their lot with Turkey, and the Allied fleets entered the Black Sea.

The Declaration of War.

In those days the Black Sea was regarded as outside the region of ordinary naval politics, and accordingly the British Navy knew absolutely nothing of Sebastopol or its defences. The paddle ship *Retribution*, under Captain the Hon. J. R. Drummond, was sent to the port with a declaration of war, and, arriving there in a thick fog, she contrived to enter the harbour by magnificent seamanship, so that when the weather cleared the Russians discovered her anchored in the middle of the port. He was compelled to move to another anchorage before the Russians would accept his declaration, but in the meantime he had contrived to make a far better survey of the port than the Allies

possessed until then, and had shown that the Russian Navy, of which Europe had been living in dread for years, was not sufficiently well trained to maintain a proper patrol before their most important base.

Odessa.

War being now declared, the Allied fleets assisted in the victualling of the Turkish Army, and then set about blockading Odessa. A boat from H.M.S. *Furious* had been sent in to bring away the British Consul, and although she was flying the white flag she had been fired at, with the result that the Allies determined to bombard the place. The shot and shell of the fleet, together with rockets fired from boats, did tremendous damage and in the confusion a number of British and French merchantmen who were detained in the port contrived to slip out and escape. The bombardment ceased when the flames threatened to consume the town; all through the action the fleets had been most careful to concentrate their fire on military objects only.

The Loss of H.M.S. "Tiger."

Having dealt with Odessa, the fleets appeared off Sebastopol at the end of April, 1854, but the Russians refused to be drawn out. They remained there for a considerable time, bombarding when opportunity offered and assisting the Turkish troops ashore as much as possible. Ships were detached for various purposes, the most unlucky instance of this being when H.M. paddle frigate *Tiger*, under Captain H. W. Giffard, was ordered to cruise off Odessa and, stranding in a fog, found herself directly under a Russian battery which hammered her until she was forced to surrender with heavy losses.

The Blockade of the Danube.

It was not until June 1st, 1854, that the British forces under Vice-Admiral Dundas made a definite strategical move and blockaded the mouth of the Danube. This was a move that embarrassed the Russians considerably, for it cut their communications with their troops who were advancing into Turkey, and until then the forces operating in the Black Sea had been so small and scattered that traffic had proceeded on this lane almost without inconvenience. The blockade was followed by the transfer of the Anglo-French base from Gallipoli to Varna, a transfer that was carried out by sea.

The Cruise of the "Vladimir."

The Russians had a powerful fleet in the Crimea but they made but little attempt to use it, although they might well have done very considerable damage to the Allied fleet with the way their ships were handled. There was one exception, however, and that was the steam frigate *Vladimir*, which made a sortie from Sebastopol and did a good deal of damage to the Turkish fleet on the south coast of the Black Sea, carrying back several ships as prizes. It was therefore decided that the Crimea should be invaded, although Admiral Dundas was against the suggestion which had the warm support of the generals. H.M.S.

Fury made a survey of the most suitable landing places. It was certainly time that a move was made, for cholera was already beginning to break out, not only in camps on shore but also in a number of French transports. From these ships it spread to the French men-of-war, and, in spite of all the efforts of the British naval authorities, to the British. The outbreak in the latter fleet was comparatively slight as compared with the French, but a large number of men died.

Criticism of Dundas.

Meanwhile, Admiral Dundas was being very severely criticised in the fleet and at home. He was a man of 55, and it was freely said that he had sought the Mediterranean command before war broke out simply for the sake of having a comfortable station without any excitement or fatigue. Everybody loved him personally, but his ability was only moderate and he lacked energy to a deplorable extent. His second-in-command was Sir Edmund Lyons, as different from him as he could be, but maintaining for him the greatest affection and respect. It was the lack of energy on Dundas's part that was one of the principal causes of the failure of the invasion, with the result that the French were all ready and impatient to be off before the British were ready. Most of the French line-of-battle ships and frigates were crowded with troops, and had the Russians engaged as their admiral wished the result would have been disastrous to the allied arms. The French Commander-in-Chief, Marshal Saint Arnaut, died on the voyage to the Crimea.

The Invasion of the Crimea.

The Allied Fleet with its transports finally arrived at Eupatoria Bay on September 12th, 1854, and landed with but little opposition. The town of Sebastopol was in plain sight, but there were many weary months of fighting before it could be entered. The Battle of the Alma, although a victory, was the first check, after which Dundas landed a large number of men to evacuate the wounded. Before much more could be done the Russians realised that an attack would probably be made on Sebastopol Harbour itself, and therefore scuttled their ships to block the entrance of the channel. The 15,000 seamen who had manned the fleet were put into the forts, together with most of the guns. After that the war in the Crimea was principally of a land nature, although a big naval brigade was landed and did magnificent work, especially in the batteries that they erected.

The Baltic Campaign.

In the Baltic the Russians had 27 line-of-battle ships and a number of smaller craft, and accordingly Vice-Admiral Sir Charles Napier was ordered to operate there with a fleet of 15 ships, his flag being in the 131-gun ship *Duke of Wellington*. The French were going to send a fleet to co-operate, but it was some time before this could be got ready. Sir Charles Napier had been a great fighting man in his day, but he was by then old and by no means the popular idol in the fleet that he was with the British public. His instructions from the Foreign Office also were not of a nature to encourage him to great deeds. As soon as war

(*Macpherson Collection*)

DESTRUCTION OF THE DANISH WARSHIPS, "CHRISTIAN VIII" AND "GEFION" AT ECKERNFOERDE, 1849

(From an Original Lithograph in Colours by Bollow)

Prussian interference in the struggle between Denmark and the provinces of Schleswig and Holstein led up to the later war of 1864.

(*Macpherson Collection*)

BALACLAVA, LOOKING TOWARDS THE SEA

(From a Lithograph in Colours by Walton after Simpson, published by Colnaghi & Co., January, 1855)

One of the principal difficulties of the transport service during the Crimean War was the lack of good harbours, the narrow port of Balaclava having to be used for lack of anything better.

H.M.S. " RODNEY " AGROUND UNDER FORT CONSTANTINE
(From a Colour Lithograph by T. G. Dutton after Schranz, published by Colnaghi & Co., May, 1856)

The Rodney *was one of the last of the big sailing line-of-battle ships and on this occasion off Sebastopol in* 1854 *very nearly came to grief through stranding while attempting to assist H.M.S* Agamemnon.

(From an impression lent by Messrs. T. H. Parker)

(Macpherson Collection)

MR. LUCAS THROWING A BURNING SHELL FROM THE DECK OF H.M.S. "HECLA"
(From a Lithograph after E. T. Dolby, published by Colnaghi, 31 July, 1854)

This gallant action during the bombardment of Bomarsund won for Mr. Lucas, mate, one of the first Victoria Crosses to be given to the Navy and special promotion to the rank of Lieutenant.

was officially declared he made a bombastic signal to the fleet, which finished up with the much criticised " Lads, sharpen your cutlasses and the day is your own." At the same time, in his favour it must be mentioned that the fleet was in a very inefficient condition, especially in the matter of manning. Although the details of the matter have never been properly cleared up, it is generally considered that he missed the opportunity of destroying the Russian fleet just outside Helsingfors, and gave it the chance of retiring into its port. The operation of the division of paddle frigates in the Gulf of Bothnia, without having any effect on the progress of the war, alienated a population that was far more friendly towards the British than it was towards the Russians. Various other minor operations were carried out, and when, towards the end of April, the French Vice-Admiral Parseval Deschenes arrived with six steam men-of-war and fourteen sailers, together with a very considerable body of troops, the British fleet had been reinforced and numbered 28 ships all told, of which only 6 were sailing vessels.

Bomarsund.

On June 21st, 1854, three paddle frigates attempted a preliminary bombardment of Bomarsund, but all that happened was that Mate Charles David Lucas, by his gallantry in throwing a live shell overboard, qualified for one of the first Victoria Crosses to be presented. Soon afterwards the main fleet moved towards Cronstadt, which was soon seen to be quite impracticable for an attack by ships alone. It was therefore left, and the attention of the whole force turned towards Bomarsund. This fortress was a powerful work, approached by very difficult channels. The fleet bombarded and the troops attacked, but the garrison held out gallantly for some time before it was finally forced to surrender. Over 2,000 prisoners were taken. The fortress, which was in disputed territory, was offered to Sweden, but she refused to take it and accordingly it was razed to the ground. Soon afterwards it was decided that the approach of winter made it undesirable to attempt any movement on Sveaborg or any other point, and the fleet began to move home. Napier had been a failure in the Baltic, there is no doubt, but the Admiralty were really quite as much to blame as he was, if not more, and when he finally decided against a harsh order from the Admiralty to attack Sveaborg when it was obviously too late in the season, he was ordered to strike his flag.

The White Sea, 1854.

While Napier was in the Baltic, a small British force of three ships was sent up to the White Sea to blockade the Russian ports and to prevent any Russian ships from slipping down and preying on allied commerce. The operations carried out were not important, for the force was too small to attempt the reduction of Archangel which might have had some considerable effect on the war, and the ships contented themselves with battering minor positions.

The War in the Far East.

Russia only had three ships in the Far East, the *Pallas* of 60 guns, the *Aurora* of 44, and *Dvina* of 12. On the other hand, the British had five ships and the French another four, so that the Russian fleet had no hope of a successful attack. The *Pallas* was accordingly sent to the river Amur, where her people and guns greatly helped in the defensive works, while the other two ships took refuge in the port of Petropavlovsk, in Kamtchatka, and immediately took steps to strengthen the position. However, the Allies determined to attack, the fleet being under Rear-Admiral David Price, R.N., who went down into his cabin and shot himself as he was leading the fleet in. On false information his successor decided on an attempt to seize the town and batteries from the land side, and was promptly beaten off with considerable losses. His force secured a few very minor successes which were not worth the cost, and then left the coast.

The Winter in the Black Sea.

The end of Admiral Dundas's command in the Black Sea was unlucky, for on November 14th, 1854, a terrible hurricane broke over the Crimean coast. Balaclava Bay, which offered poor enough shelter at the best of times, was crowded with transports and men-of-war, and in spite of the warnings of the barometer practically none of the captains had taken any precautions. The result was disastrous, 34 transports being wrecked with terrible loss of life, and 14 more off Katcha. Two French men-of-war were wrecked, but perhaps the worst thing was that the winter stores of the army were lost, causing dreadful hardships during the ensuing months.

The Azof Expedition.

In the spring of 1855 it was decided to carry out an expedition against the Sea of Azof, but the first use to which the new submarine cable to the seat of operations was put was for the Emperor Napoleon to interfere with this scheme. However, after some delay the Anglo-French expedition sailed. The result was strikingly successful, and colossal quantities of stores for the Russian army were destroyed. These waters continued to provide exciting operations for some considerable time afterwards. There was an outcry among certain sections at home that these operations should never have been undertaken, but when one considers the huge quantities of war stores that were destroyed, it will be realised that they had a very important effect on the progress of the struggle.

The End of Sebastopol.

The first result of the Azof expedition was to impress the Russians at Sebastopol that the struggle was hopeless. The Allies took position after position with heavy losses, until finally, on the night of September 8th, 1855, the Russians began to withdraw from the town, scuttling practically all their remaining ships and blowing up the forts. Altogether the Russians destroyed well over a hundred of their own men-of-war,

(*Macpherson Collection*)

COSTUMES OF THE ROYAL NAVY—CAPTAIN, FLAG OFFICER, AND COMMANDER (UNDRESS)
From a colour lithograph by Mansion & St. Eschaezier, 1833

although many of these were only small gunboats. The docks of Sebastopol were at that date the finest in the world and had cost over £20,000,000 to build, but they were ruthlessly destroyed and the Allied forces gathered strength for an attack on Kinburn.

Kinburn, 1855.

The possession of Kinburn meant the bottling up of the rivers Bug and Dnieper, but it was powerfully defended. However, with the big fleet that the French and British then possessed, its fall was something of a foregone conclusion. The operations are particularly interesting because they brought into prominence the three French ironclad batteries *Tonnante, Lave* and *Dévastation,* which have given the name of Kinburn batteries to the original ironclads. The British were also to have had some ships of the same type but they were not finished in time. Troops were landed to cut off the retreat of the Russian garrison, and a big force of ships of all sorts started the bombardment. The three ironclads anchored at less than a thousand yards range and by slewing round and firing at extreme bearing, they reduced the vulnerability of their gun-ports as much as possible and withstood all the Russian fire without the least difficulty.

The Far Eastern Campaign of 1855.

Rear-Admiral Price's successor in the Far East was Rear-Admiral Henry William Bruce, but early in 1855 the garrison of Petropavlovsk contrived to slip out of the place with the two men-of-war, and made their way up the Amur. The Allies arrived in May, but there was nothing to be done except to destroy such public works as had been left and then to sail away.

The Baltic Campaign of 1855.

Napier's successor in the Baltic was Rear-Admiral the Honourable Richard Saunders Dundas, the Second Sea Lord, and the fleet which was given him was infinitely superior in every way to that of his predecessor. Not only did it consist entirely of steam men-of-war, but it had been reinforced by a number of gunboats and small craft, which were just what were needed for such a service. In addition it was to have had some armoured batteries of the Kinburn type, but these were not ready for service. The French fleet this year was under Rear-Admiral Penaud, but there was no co-operation until June, by which time the British squadron had carried out a blockade of the coast of Courland and numerous minor operations. The damage that had been done in the Black Sea by cholera was repeated in the Baltic Squadron by smallpox.

The Affair of Hango Head.

In the early summer of 1855 a great stir was made by an incident at Hango Head, when H.M.S. *Cossack* attempted to land seven prisoners. A boat was sent in under a lieutenant carrying a flag of truce, but this boat was armed and the ship's stewards went ashore in it to get what provisions they could. The result was that a Russian party

fired on the boat and killed the majority of its occupants, taking the others prisoner. A great fuss was made of this as an atrocity, but the Russians very rightly pointed out that the *Cossack* had not been flying a flag of truce, that they had not seen the flag of truce worn by the boat, and that, even if they had, she had no business to send a foraging party ashore in it, or to have arms in the boat, or to presume on its protection before the Russians had given them any indication that they accepted the truce. All of which points were strictly logical, and the whole incident shows how careless naval officers had got in matters of this sort when they had found that it was perfectly safe to land on most points of the Russian coast and trade with the inhabitants.

Russian Mines.

There had long been rumours of mines being used by the Russians, but it was not until June, 1855, that Rear-Admiral Penaud, with a mixed Franco-British force, attempted to survey the approaches to Cronstadt. H.M.S. *Merlin*, in shelling a Russian gunboat at extreme range, struck a mine which blew up forward. It did not do very much damage to the ship, but her engines were reversed, and in coming astern she got another mine under her starboard paddle, which shook her badly. H.M.S. *Firefly* also had a mine blow up under her bow, but neither ship sustained any real damage. These mines were of the Jacobi type, charged with gunpowder, and were detonated in practically the same manner as the modern mine. They appear to have been efficient, but the charge of powder was far too small to do any great harm. The Russians had laid a very considerable minefield, however, and over thirty were dredged up by the Allies. They were regarded as a great joke in the fleet and one was being examined on board H.M.S. *Exmouth* when it went off and wounded a number of officers.

The Attack on Sveaborg.

Cronstadt having proved itself far too hard a nut to crack, a number of minor actions in the Baltic led up to the grand attack on Sveaborg, which should have been undertaken early the year before. At the same time it was decided not to operate against Helsingfors, which many people considered to be the better prize. Sveaborg was very strong, and there was no landing party, so that it developed into the old question of the chances of ships against forts. Early in August Captain B. J. Sulivan buoyed the waters round the fortress. A large number of mortar boats and gunboats took part in these operations, with the heavy ships outside, and all the ships concentrated a rapid fire of shot and shell, which was steadily returned. The gunboats were handled magnificently and sustained surprisingly little damage, but after the action had been going on for some time it was observed that the buildings in the fortress were catching fire one after another. Suddenly there was a colossal explosion, followed soon after by another. These explosions not only did great damage to the fortifications, but caused heavy casualties and the Russian fire began to slacken. At sunset the gunboats were recalled and were replaced by rocket boats, which started a number of new fires.

(*Macpherson Collection*)

SIEGE OF SEBASTOPOL: H.M.SS. "AGAMEMNON" AND "SANS PAREIL" ENGAGING FORT CONSTANTINE AND TELEGRAPH BATTERY AT SHORT RANGE, OCTOBER 17, 1854
(From a Colour Lithograph by and after Morel Fatio)

The bombardment of Sebastopol marks the end of the wooden battleship era, for at Kinburn the ironclad made its first appearance.

(*Macpherson Collection*)

CAPTURE OF KERTCH, MAY 25, 1855
(From a Colour Lithograph by and after Beeger & Guérard)

The minor operations at Kertch and in the Sea of Azov deprived the Russians of their main sources of supply.

(*Macpherson Collection*)

MORTAR BOATS AT THE BOMBARDMENT OF SVEABORG, AUGUST, 1855
(From a Colour Lithograph by Dickinson Bros.)

The illustration gives an excellent idea of the development of the mortar boat from the bomb ketches shown in previous chapters.

(*Macpherson Collection*)

H.M.S. "RALEIGH," 50 GUNS
(From a Colour Lithograph by and after T. G. Dutton)

The end of the Raleigh *was worthy of the ship, one of the finest vessels of her type. Going out to China under Commodore Keppel she ripped her bottom out on an uncharted rock off Macao. The French flagship going to her assistance, the Admiral received the proper salute without haste or omission, although the main deck guns were awash when the final rounds were fired from the quarter deck.*

Early next morning the small craft got into position again, and the bombardment went on for the whole day and night. By that time the Russian fire was practically silenced, but another very good reason for discontinuing the action was that the guns which had been cast for the new gunboats and the mortar vessels had failed in many cases, while the French also were having a lot of trouble with their artillery. The attack had been carried out with a loss of only one man killed and a few wounded, while, although the number of Russian casualties is a little uncertain, it was probably in the neighbourhood of 2,000. As the fortress could not be occupied, the value of the operations was doubtful. The remaining naval operations in the Baltic were of a very minor description, and before Admiral Dundas could sail with the Baltic Expedition of 1856, the war was over.

The Treaty of Paris.

It was obvious that there was to be no more fighting long before the Treaty of Paris was signed or ratified. This instrument arranged that all conquests and territories should be returned ; that Turkey should be admitted to participate in the advantages of the public law and Concert of Europe, and her independence and territorial integrity should be guaranteed ; that the Sultan of Turkey should not be interfered with in the administration of his own territory ; that the Black Sea should be neutral ; that neither Russia nor Turkey should maintain arsenals there, and, in addition to minor clauses which are of little interest, that Turkey should have her ancient right of prohibiting foreign men-of-war from entering the Bosphorus and Dardanelles except for the purpose of the International Commission on the Danube. This treaty was followed by the Declaration of Paris, which was signed by Great Britain, France, Turkey, Sardinia, Russia, Austria and Prussia, and subsequently by a number of other countries, and which maintained that privateering was and should remain abolished, that a neutral flag covered enemy goods with the exception of contraband of war, that neutral goods with the exception of contraband of war were not liable to capture under an enemy flag, and that blockades, in order to be binding, must be effective. This Declaration of Paris was the subject of a good deal of discussion later on, while as to the Peace, Russia ignored it when it suited her purpose and it merely proved that England and France had gained absolutely nothing from their efforts, and that Russia had lost less. The whole war was, in fact, a waste of lives and money, but the expensive lessons taught by it resulted in a number of naval reforms which really made the modern Navy.

Sherard Osborn's Fleet.

One of the most peculiar naval forces ever raised was that commanded by Sherard Osborn in the Taeping Rebellion in China. To protect foreign interests Britain had been forced to take a very much more prominent part in these operations than she had any intention of doing, but not desiring to embroil herself permanently in Chinese

affairs, she persuaded the Pekin Government to raise a fleet of its own and suspended the Foreign Enlistment Act especially to permit British naval officers to help to man it. It was put under the command of Captain Sherard Osborn, with the rank of admiral, and a number of other British officers, both active and retired, were under him. Some of the ships were specially built for the service, some were bought from the British Navy, while some were converted in China. When it got out there the Chinese Government refused to have anything to do with it except on outrageous terms, with the result that it soon returned to British waters. A rather peculiar situation arose regarding the very small operations that it carried out while it was in existence, for although it was raised for the Emperor in all good faith, it had never been given his commission, with the result that technically the officers were pirates and might easily have found themselves in a very awkward position.

The China War of 1856.

Matters had been very unsatisfactory in China for some time past, and the officials, especially the local mandarins, had forgotten the lesson of the First China War and were very aggressive as far as Europeans were concerned. The climax came when the lorcha *Arrow*, registered at Hong Kong, was seized by the Chinese and the British flag hauled down with every mark of indignity. The apology which the Chinese authorities made was not at all satisfactory to the British, so it was decided that the Royal Navy should seize an Imperial junk to counteract the blow to European prestige. Had they done so it would probably have been a very excellent move, but as it was they seized a private junk instead, and having to restore it to its owners made things worse than before. Rear-Admiral Sir Michael Seymour was Commander-in-Chief and immediately took strong measures, capturing Canton with a powerful naval force. The Americans took no part in this action, but the U.S.S. *Portsmouth* landed a force to protect American interests. The capture of Canton proved to be only the beginning of the trouble. The Bogue forts were taken with a good deal of difficulty, but it soon became obvious that it would be necessary to employ a very considerable land force as well as the fleet, and the regiments intended for the Chinese operations were diverted to deal with the Indian Mutiny of 1857, dividing the China War into two parts.

The Loss of the "Raleigh."

Although the Indian Mutiny held up the operations on land, the Navy in China was still active and was constantly being reinforced. One of the ships to be sent out was the frigate *Raleigh*, under the command of Commodore Keppel. Unfortunately, off Macao she had the misfortune to strike an uncharted rock which ripped the greater part of the bottom out of her. Keppel sent off distress signals, which were answered by the French Commander-in-Chief on the China station, but so finely had he disciplined his men on the way out that he was able to fire the proper salute that was due to the French admiral's rank with

his quarter-deck guns, although his main deck guns were already awash. There was no sign of haste in the salute, the last round of which was fired just as the guns were totally submerged. Needless to say, this exhibition of courtesy and discipline appealed very strongly to the Frenchman. The *Raleigh's* boats were taken on to the scene of operations, and with her crew did splendid work.

Fatshan Creek.

On June 1st, 1857, a diversionary operation was attempted by the British Fleet at Fatshan Creek. The Chinese had a huge fleet of war junks in a strong position between Canton and Fatshan, the natural defences of the place being strengthened by a 19-gun fort and a 6-gun battery on the opposite side of the river. There were over 80 well-armed junks in the fleet, when Admiral Seymour attacked with his flag in the small paddler *Coromandel* and eight gunboats, together with a number of boats from the big ships of the fleet. A naval brigade was made up of seamen and marines for the purpose of assaulting the fort. The casualties were heavy, but gradually the Chinese were forced to abandon junk after junk, and before the end of the day, between 70 and 80 had been destroyed and the remainder driven to the protection of the city of Fatshan. This success was not followed up for some time, when Canton had to be bombarded and retaken. After sundry other actions the Treaty of Tientsin was signed, but immediately broken, partly by the deliberate intention of the Chinese authorities and partly by insubordinate local mandarins. The fact that the Taeping rebellion was still in progress made it very difficult to conclude satisfactory arrangements that should be binding.

The Peiho Forts.

In 1859 Rear-Admiral James Hope relieved Sir Michael Seymour, and his first difficulty was to insist upon the proper carrying out of the treaty. In endeavouring to make his way to Tientsin he found the Peiho River blocked by three booms that had been put up by the Chinese under Russian engineers, while the forts that had already been bombarded by the British fleet had been reconstructed in their previous strength. The Chinese promised to remove the obstructions, but had not the least intention of doing so, with the result that Hope decided to destroy them. He had with him the 6-gun sloop *Nimrod*, the 4-gun *Cormorant* and nine little 250-ton gunboats mounting one 68-pounder and one 32-pounder apiece, quite a formidable force but not nearly powerful enough to destroy the defences which the Chinese had erected. On June 28th, 1859, he attacked, and immediately met with a warm reception. The French were with the British in this attack; the Americans and the Russians were nominally neutral. Before very long the British ships were in a serious position and Flag-Officer Josiah Tatnall, U.S.N., who was Commodore of the American fleet in China, went to visit the wounded Rear-Admiral Hope with an offer to remove the injured from the British ships. While he was talking to Hope his

boat's crew, seeing the bow gun of H.M.S. *Plover* practically silenced through the utter weariness of her men, took charge of it and got off several rounds before Tatnall appeared. This gave rise to the famous "Blood is thicker than water" incident with which his name will always be associated. Eventually the British ships were forced to retire after three of the gunboats had been sunk and a large number of men killed and wounded. Afterwards both French and British sent out appropriate forces and the war was carried to a successful conclusion.

The British Navy in the Indian Mutiny.

The part played by the British Navy in the suppression of the Indian Mutiny was confined principally to the landing of naval brigades and batteries, particularly the detachment from H.M.S. *Shannon* which was commanded by Captain William Peel, V.C., one of the most brilliant officers of the Navy at that day. Peel unfortunately caught smallpox and died, but his brigade did magnificent work in the relief of Lucknow and other operations. The Navy also did good work in supplying a refuge for the civilian population of various towns that were threatened by the mutineers.

The Pirating of the "New Grenada."

In 1857 Peru was having one of its periodical revolutions and the greater part of the Republic's Navy took the opportunity to turn pirate. As long as they confined themselves to the ships of their political enemies no great harm was done, but two British-built gunboats, the *Loa* and *Pumbes*, stopped the British mail steamer *New Grenada* and robbed her of 32,000 dollars in addition to part of her cargo. H.M.S. *Pearl* immediately seized both ships and held them until satisfaction had been obtained; the revolutionary captains considering themselves very lucky in not being hanged as pirates.

The Battle of Lissa.

In the spring of 1866 Austria was faced with an alliance between Prussia and Italy. The latter wished to recover Venice and with this idea in mind had spent large sums on the improvement of her fleet, which included a number of sea-going ironclads built in England and the United States and which was placed under the command of Admiral Count Di Persano. He was a Sardinian and his previous good service in the Navy had been magnified into a wonderful romance, with the result that he was considered to be the only man possible for the leadership of the Italian Fleet. To his credit it must be said that he did not want to accept it, otherwise it is difficult to excuse the vacillating policy which he pursued and the way he mishandled his command at every opportunity. The Austrian Fleet which was nominally weaker than the Italian was under the command of Rear-Admiral Tegetthoff but he was an outstanding personality and had worked up his men into a far higher state of efficiency. Persano prepared nothing, none of his captains knew what was in his mind, and at the last moment he changed his flagship so that they did not even know where he was to be found.

(*Macpherson Collection*)

WHAMPOA, CANTON RIVER (ANCHORAGE OF THE EAST INDIA COMPANY'S SHIPS)
(From a colour aquatint by E. Duncan after W. J. Huggins, published 1835)

THE ACTION IN FATSHAN CREEK, JUNE 1, 1857
(From a Colour Lithograph by E. Walker after O. W. Brierly, published 1857)

In the foreground Commodore Keppel in his sinking gig is shown shaking his fist at the Chinese. Although the Raleigh *was sunk her boats did excellent work in the campaign.*
(From an impression lent by Messrs. T. H. Parker)

(*Macpherson Collection*)

VIEW OF HONG KONG AND HARBOUR LOOKING WEST FROM MURRAY'S BATTERY, 1846.
(From a Lithograph by A. Maclure after M. Bruce)

First occupied as a naval base in the China War of 1840 *Hong Kong remained in British hands after the peace, and became the centre of British trade in the Orient.*

(*Macpherson Collection*)

ROYAL MARINES AND SEAMEN LANDING TO ATTACK THE PEI-HO FORTS, JUNE 25, 1859
(From a Colour Lithograph by E. Walker after a Drawing by Lieut. Masters, R.M.L.I.)

The interval in the China War caused by the Indian Mutiny made the task of the British Navy infinitely more difficult.

(*Macpherson Collection*)

THE BATTLE OF LISSA, JULY, 1866
(From a Colour Lithograph published by Gosselin, Paris)

The superior gunnery of the Austrians at Lissa and the deadly use they made of the ram, attracted world-wide attention to the first action between modern sea-going fleets.

The result was that by steady firing and the judicious use of the ram the Italian Fleet was defeated with heavy loss and driven off, although Persano at the end of the action had more ships than the Austrians at the beginning. In the end he was brought to trial before the Italian Senate and charged with treason, disobedience, cowardice, incapacity and negligence, all of which were proved to the hilt. He may be said to have escaped very lightly with degradation.

The Naval Side of the Franco-Prussian War.

The Franco-Prussian War was almost entirely a land struggle, for although France had an overwhelming fleet it had been allowed to get into such a bad condition since the Crimea that it was able to accomplish very little. The greatly inferior German ships retired behind their defences—the outlying shoals reinforced with mines and land batteries—and all that the French could do was to maintain a strict blockade. In justice to them it must be said that it was very doubtful whether they could have done very much more had they been at the finest pitch of efficiency. The only real action was between the French *Bouvet* and the German *Meteor* off Havana, but that was of a very unsatisfactory nature and was broken off when they strayed into Spanish territorial waters. On the other hand the only operation that the Germans attempted was a commerce destroying cruise by the sloop *Augusta* with but indifferent results.

CHAPTER III—THE NAVIES OF THE NEW WORLD

Cochrane in Chili.

In 1817 Lord Cochrane, smarting under the disgrace of his conviction for fraud, which is now generally admitted to have been most unjust, went across to Chili to take command of their Navy in the struggle against Spain. They were building a man-of-war steamer in London, the *Rising Star*, and after having interested himself in her and superintended part of her fitting out, his impatient spirit carried him away and accordingly he went direct to Valparaiso, where he landed in November, 1818. Admiral Blanco Encalada was in command of the fleet, which consisted of the 18-gun sloop *Calvarino* (formerly H.M.S. *Hecate*), a captured Spanish frigate, two small sloops and a couple of converted merchantmen. Blanco Encalada very patriotically stepped back in favour of Cochrane as soon as he reached Chili, the only opposition to his appointment being from the British officers who had already taken service. General O'Higgins was Dictator of the Republic, and the 50-gun Spanish frigate *Maria Isabel* was renamed *O'Higgins* to become Cochrane's flagship.

The Capture of the "Esmeralda."

If one picks up a Chilian Navy List of any date one will always find the name *Esmeralda* borne by an important man-of-war, in honour of one of the most gallant feats of arms in the history of naval warfare.

The original *Esmeralda* was a Spanish 40-gun frigate, which at the end of 1820 was at Callao under the protection of batteries mounting 300 guns, with a powerful boom outside, 27 gunboats and a number of launches patrolling, and everything done to make her capture absolutely impossible. Cochrane did not like the word "impossible" any more in the South American service than he did in the British, with the result that, collecting his little squadron off the port, he called for volunteers for the capture of the *Esmeralda*, and so great a name had he made for himself that he was immediately embarrassed with the task of choosing from practically his whole fleet. Eventually 160 seamen and 80 marines were chosen and manned 14 boats, the remainder of the ships outside causing a diversion which would lead the Spaniards to suppose that no attack would be attempted that night. There was only one small opening in the boom, protected by a guard boat, and Cochrane's own launch came alongside her with rather startling suddenness. They secured all hands before they could give the alarm, and with perfect precision the boats came alongside the *Esmeralda* and boarded. The Spaniards were taken by surprise but they put up a gallant fight and, outnumbering their enemies, appeared at first to have every chance of success. They were, however, finally overpowered. Cochrane himself was severely wounded. As he was clambering over the main chains the sentry felled him with the butt of his musket, and, falling back into his launch a thole pin entered the small of his back close to the spine and caused him a wound from which he suffered for years. However, he was up again at once and was then shot through the thigh, so that he had the greatest difficulty in leading his men to their final victory. By this time the garrison were opening a heavy fire which killed as many of their own men as Chilians. Cochrane had intended to take every ship in the harbour, but, weak from loss of blood, he had to hand over the command to Commander Martin Guise, R.N., who contented himself with getting the *Esmeralda* out of the harbour with 200 unwounded prisoners on board. After many other equally gallant exploits Cochrane found personal emnities making his position impossible and in retiring from the Chilian Navy had the greatest difficulty in getting his pay and prize-money.

Cochrane in Brazil.

In spite of his experiences in Chili Cochrane entered the service of Pedro I of Brazil in 1823 and took command of his fleet to fight against the Portuguese. Once again he had great trouble to find crews, but a good many English and American seamen enlisted under his flag. As he himself described it, one half of the squadron was required to watch over the other half. It was impossible to do very much with the material at his disposal, but his name carried such terror on the South American coast that his very presence caused several points to be evacuated. His great triumph was in July, 1823, when single-handed in his flagship the *Pedro Primiero* he got in among a big Portuguese convoy and captured ship after ship, including a number of transports filled with troops. On the other hand, although the Emperor himself wished to treat Cochrane

straightforwardly there was a strong pro-Portuguese feeling in the Parliament and it was some years before he received any reward.

The "Caroline" Affair.

A very nasty situation was created between the United States and Great Britain in 1837, when a party of malcontents attempted to make Canada into a republic and were openly basing their operations in American territory. They seized Navy Island, in the middle of the Niagara River just above the Falls, and were keeping it supplied with a steamer called the *Caroline* from the American side. Colonel MacNab was sent to destroy the steamer and discovered her on the American side of the stream. Her people were taken prisoner and she was set on fire, drifting like a huge torch over the Falls. Naturally mischief-makers made great capital out of the incident—for she was certainly seized on the American side of the river—declaring quite untruthfully that the wounded had been burned; but steady opinion in the United States realised that local action in the whole affair had been most unneutral. Therefore, beyond an investigation as to the death of one of the rebels in this affair the matter was not pressed.

A Mistaken Conquest.

Rather a curious accident occurred in September, 1842, when Captain Thomas Jones, U.S.N., had an American frigate in the port of Callao. The British frigate *Dublin*, flagship of the Pacific station, ran into the port, but, finding the roadstead full, made out again. There seemed to be nothing suspicious in this, but Commodore Jones had heard rumours that Britain and France intended to seize California in payment of Mexican debts, and determined to forestall them. There were rumours of war between Mexico and the United States, and he saw that this would be the opportunity of the European powers, so that, making all sail with the greater part of his squadron, he reached Monterey and forced it to surrender, annexing California in the name of the United States. As it transpired that America and Mexico were at peace, of course he had to give up his capture, but the Washington authorities were not by any means displeased with him and he was not censured.

The War with Mexico.

Commodore Jones had only acted too soon, for it was obvious that trouble was bound to break out between the United States and Mexico, and war was actually declared in May, 1846. At that time the U.S. Pacific squadron was under Commodore Sloat, who immediately captured Monterey with a handful of marines and seamen, while the U.S.S. *Portsmouth* took possession of San Francisco Bay. The Mexicans had no great force in California, and what there was had no pretensions to discipline, so that the State was really captured without bloodshed or any great danger. The U.S. Marine Corps greatly distinguished themselves in these operations. Having surrendered, several Mexican generals collected a guerilla army and caused the American Naval Brigades a good deal of trouble.

The War in Eastern Mexico.

In many other places in the Pacific also the naval brigades and marines did splendid work, but it was on the east coast that the Navy got its chance. Every available ship maintained a blockade of the Gulf ports. Shallow water and overwhelming odds in favour of the Mexicans made operations a little difficult. The principal action was the capture of Vera Cruz, for which all the available men-of-war were taken, and 13,000 soldiers under General Scott were put into transports. The port was powerfully defended under German artillerymen, and special boats were constructed for the landing. The disembarkation was carried out in excellent style while the fleet ran in to bombard the forts. The Mexicans relied as much upon the weather and the certain arrival of yellow fever as they did on their gunfire. Commander Tattnal, in command of a small division, most audaciously took his ship close under the forts and opened a tremendous fire. In spite of the energy of the American attackers, however, the fortress proved a very hard nut to crack and it was some time before it surrendered.

The End of the War.

The peace between the United States and Mexico was patched up on February 2nd, 1848, Washington agreeing to pay large sums for the territories that she retained. It was an unsatisfactory war in many ways, for the Navy had but little chance of distinguishing itself in its proper rôle, but in combined operations with the Army against fortified seaports and in mixed brigades of seamen and marines, landed for service as soldiers, the U.S. Navy did exceedingly well. Also the war brought forward a number of officers who were later to make great names for themselves in the unhappy Civil War.

The Americans in Japan.

For centuries past Japan had been a territory to which the eyes of European and American explorers were apt to turn. At the end of the eighteenth and beginning of the nineteenth centuries several attempts were made to open up trade with the island empire, but nothing very definite was done until 1846, when Captain James Biddle, U.S.N., took the men-of-war *Columbus* and *Vincennes* to Urago, but the Japanese refused to have anything to do with him and he sailed away again. In the same year Commander James Glynn, in the U.S.S. *Preble*, went to Nagasaki to demand the release of the crew of the wrecked whaler *Lawrence*, and after a good deal of difficulty he succeeded in getting them without having to resort to actual force. In 1851 it was decided to send Captain John H. Aulick, U.S.N., but he was removed for political reasons before he could sail, and the next year Captain Matthew Galbraith Perry went out in his place with the *Mississippi*, *Plymouth*, *Saratoga*, *Supply* and *Susquehanna*, of which only the last-named was a steamer. He arrived off Urago in July, 1853, and the appearance of the steamer caused a panic. Perry cleared his ships for action, and it was by his firm policy that he was able to bring down the Japanese

Destruction of the American **STEAM BOAT CAROLINE** *by the British who having set her on fire sent her with the killed and wounded down the Falls of Niagara on the night of Friday 29th Dec.r 1838*

(Macpherson Collection)

THE STEAMER "CAROLINE" DRIFTING OVER NIAGARA FALLS, 1837

FROM A CONTEMPORARY COLOUR PRINT

(There were no wounded on board as stated in the inscription. For the facts see page 89)

(Macpherson Collection)

THE BURNING OF THE U.S. STEAM FRIGATE "MISSOURI" AT GIBRALTAR, AUGUST 26, 1843
(From a Lithograph by T. G. Dutton after E. Duncan and Lieut. Mends)

The Missouri *was one of the finest of the famous paddle frigates built by the U.S. Navy.*

(*Macpherson Collection*)

THE U.S. SHIPS "COLUMBUS" AND "VINCENNES" LEAVING JEDO BAY, JULY 29, 1846
(From a Colour Lithograph after J. Eastley)

By opening up the Japanese ports to trade the U.S. Navy rendered a great service to the whole world.

(*Macpherson Collection*)

THE CAPTURE OF TABASCO, MEXICO, BY U.S. NAVAL EXPEDITION UNDER COMMODORE M. E. PERRY, 1847
(From an Original Lithograph by Lieut. H. Walke, U.S.N.)

The war between the United States and Mexico is one that receives comparatively little attention, but it gave the U.S. Navy the training which it put to good use during the Civil War.

(*Macpherson Collection*)

THE U.S. NAVAL EXPEDITION TO MEXICO UNDER COMMODORE PERRY, ASCENDING THE TUXPAN RIVER, 1847
(From a Colour Lithograph by J. Vollmering after Lieut. H. Walke; published 1848)

Many of the Mexican positions were defended by strong shore batteries, but their material and gunnery were poor.

reserve to the extent of getting the Vice-Governor of Urago to come on board for a conference. Perry had a letter from the President of the United States, and despite all efforts to persuade him to go round to Nagasaki, which was conveniently out of the way, he insisted on delivering it at Urago. The letter was delivered with all due ceremony, and the fleet returned early the next year to Yokohama, where after a good deal of discussion the terms of a trade treaty were agreed to, opening Japan to the Western nations and laying the foundations of a meteoric advance which has no parallel in history.

The Beginning of the American Civil War.

It is not necessary here to go into the events which led up to the outbreak of the American Civil War; it must suffice to say that when hostilities began in April, 1861, the North had a very tolerable fleet, well equipped and fairly well manned, while the South had not a single ship, very few trained seamen, but a splendid corps of officers who had had all their training and experience in the United States Navy. Unfortunately for the North, the Navy Department, towards the end of Buchanan's Presidency, had been exceedingly slack, so that, although the Navy List contained 50 sailing vessels and 40 steamers, they were not by any means all of them ready for active service and many of them were quite unfitted for action, while others were on distant stations or returning from them.

New Construction.

The first thing that the Navy Department did was to construct new and useful men-of-war. Eight steam sloops were the first to be built, four of them from accepted designs and four on slightly improved lines. A few months later six more sloops, rather larger and better ships, were laid down, and it was these ships that formed the backbone of the blockading squadron when the war was well under way. At the same time they bought everything that could possibly be made to carry guns and fight. Many of the ships that were purchased at that crisis were of very little use, but others which appeared most unpromising did excellent work in the blockade and also in patrol work. Even the little ferry steamers which ran about New York Harbour were pressed into service and served their purpose. Then a number of small shallow-draught ships were built, the urgency of the occasion prompting the Navy Department to lay them down without getting the approval of Congress. One class was known as the 90-day gunboats, little vessels of 500 tons mounting from four to seven guns, capable of steaming at ten knots and having a draught of nine feet. They were built in record time and many of them gave trouble through leaking, but they were just what were wanted and they proved their worth in a most fortunate manner. Then came the double-enders and numerous other freak craft, and finally the monitors, but as they did not appear until very much later in the war they can be left for the moment.

The Confederate Navy.

Meanwhile the Southerners did all that they could to make good their shortage of material. A Navy Department was formed, and Mr. Mallory, who had already had considerable experience in naval administration, was put in charge of it. A million dollars was voted for the construction or purchase of ten steam gunboats. Six U.S. revenue cutters which were in southern ports were immediately commissioned as men-of-war. The famous old *Fulton II* was found at Pensacola, and a sum of 25,000 dollars was earmarked to fit her for sea. At the Norfolk navy yard the steam frigate *Merrimac* had been found, partially destroyed by the retreating Federals. She was raised and fitted with an extraordinary armoured casemate, so that she really looked far more like a floating haystack than anything else. Without the big supply of naval guns that fell into their hands at Norfolk, the efforts of the Southerners would have been hopeless; as it was they did wonders.

The Commencement of the Blockade.

The first thing that the Federal Administration did was to announce the blockade of the Confederate coast. There were many who believed that this was exceedingly ill-advised, for at that moment the Navy only had three steam men-of-war in home ports and by then it was the rule that blockades, to be binding, must be effective. Again there was a question as to whether this did not hamper the diplomatic position of the North, for it was their policy to deny the Southerners the status of combatants. Neutrals naturally said that they had of course the right to settle their own internal affairs as they thought best, but when they pronounced the blockade they brought in outsiders, and it was difficult to see how they could formally blockade a coast which they claimed as their own territory. Added to these difficulties there were internal dissensions, faint hearts on the border and innumerable political considerations to hamper the actions of the President. Everything that could float was pressed into the blockading service—sailing vessels, steam tugs, revenue cutters, ferry steamers and scores of miscellaneous small craft. They were quite insufficient for the purpose, and for a long time afterwards it was only the principal ports that were blockaded. Point after point, however, on the coast was brought into closer surveillance as the Navy increased.

The Rise of Nassau.

The immediate result of the blockade was a great boom for the port of Nassau. In the centre of the Bahamas, approached by a tortuous channel, this little town was a sleepy West Indian port which had no ambitions above fishing or perhaps a little smuggling or wrecking. Within a few months it had become the centre of the blockade-running business, and was a humming hive of activity. Everything was turned upside down. Money flowed like water, for the blockade runners were as a rule a reckless, swaggering crowd who spent their money just as easily as they earned it, so that, having disposed of every-

thing that they had to sell, the inhabitants soon found that they were worse off than they were before. To a lesser extent Bermuda also profited by the blockade; although it was not nearly as close to the southern coast as Nassau it had the advantage of a straight run across with the minimum of time in enemy waters, whereas Key West was sufficiently close to the Bahamas for its ships to cover them thoroughly. After them came Havana, which was still less conveniently situated, and finally Matamoros, which was only separated by the Rio Grande from Confederate territory but was a long way from the centre of activities.

The Principle of Continuous Voyages.

Most of the blockade runners attempted to a certain extent to mask their activities by taking out their papers to neutral ports, but the old principle of the continuous voyage was immediately applied, and when it became obvious that they were really destined for the blockaded coast, this pretended destination was ignored by the courts. In their eagerness to obtain prizes, however, certain Federal commanders were not always over careful about the evidence of continuous voyage and failed accordingly. The blockade runners tried innumerable tricks to get round the prohibition, and the ingenuity that they displayed was remarkable.

The Line of the Blockade.

The blockade nominally began at Washington, extending down the Potomac River and the Chesapeake Bay and along the coast to Port Canaveral. The three principal points were Wilmington, Charleston and Savannah, all of them flourishing southern ports which had every appliance for the rapid handling of runners.

The Blockade Runners.

This business of blockade running, as far as material was concerned, was divided sharply into three periods. During the first, when the North had not nearly enough ships to maintain an efficient watch, anything that would float was used and quite a large number of sailing schooners made big profits for their owners by getting through the cordon. Before long, however, this became impossible and steamers only were employed. Again the quality was not high but it gradually improved and the fast pleasure steamers which ran round the British coast, especially on the Clyde or on the cross Channel services, very speedily found purchasers at high prices. They were very tolerably successful. The third period saw specially built steamers on the trade, generally the products of British or French yards. They were not too big—500 tons was regarded as being about the useful maximum—and were propelled by paddles at anything from 14 to 17 knots. Invisibility was everything, with the result that they were given low freeboard that often proved dangerous at sea, and were painted a light grey. This is the first occasion on which grey paint was used as a protective colouring, a system which is now practically universal all over the world.

They had turtle-back decks for seaworthiness, telescopic funnels, and their safety valves exhausted below water in order to show the minimum of white steam. These ships were remarkably successful and scarcely any of them were captured, although one or two were driven ashore by the gunfire of the blockading forces. When this occurred the cargo generally fell into the hands of the Southerners, although it was the blockaders' first business to burn them as they lay stranded.

The Commodities of the Blockade.

As the iron fields of the South were absolutely undeveloped and the Southern States had relied entirely on their enemies for manufactured goods it was not surprising that very soon the shortage of weapons of war became acute and one of the principal commodities of the blockade runners consisted of munitions and iron of all sorts. It must not be thought that the South was the only party which imported its munitions, but the supply to the North was never interrupted and nobody ever questioned its legality. In addition to munitions and iron, medicines, clothing, oil and coal had a very ready sale and were in constant demand. Human nature being unaltered by war and the price of freight being fixed at round about £100 per ton, it is not surprising that the blockade runners attempted to find their best market and one well-known captain made quite a little fortune by taking thousands of pairs of ladies' corsets into the South. This was not at all what the Southern authorities wanted, so that before long the trade was regulated and the profits were considerably curtailed.

At the same time the outward cargoes were nearly as important as the inward, consisting entirely of cotton. This was the staple industry of the South and they wanted to export it not only for the purpose of paying for the arms and commodities which they bought abroad but also to keep their negroes busy and by so doing avoid the danger of a potential enemy within their own lines. Every blockade runner therefore left the Southern ports packed as tight as possible with cargo, but even so stowaways contrived to find their way on board, and the first routine was to smoke them out with sulphur.

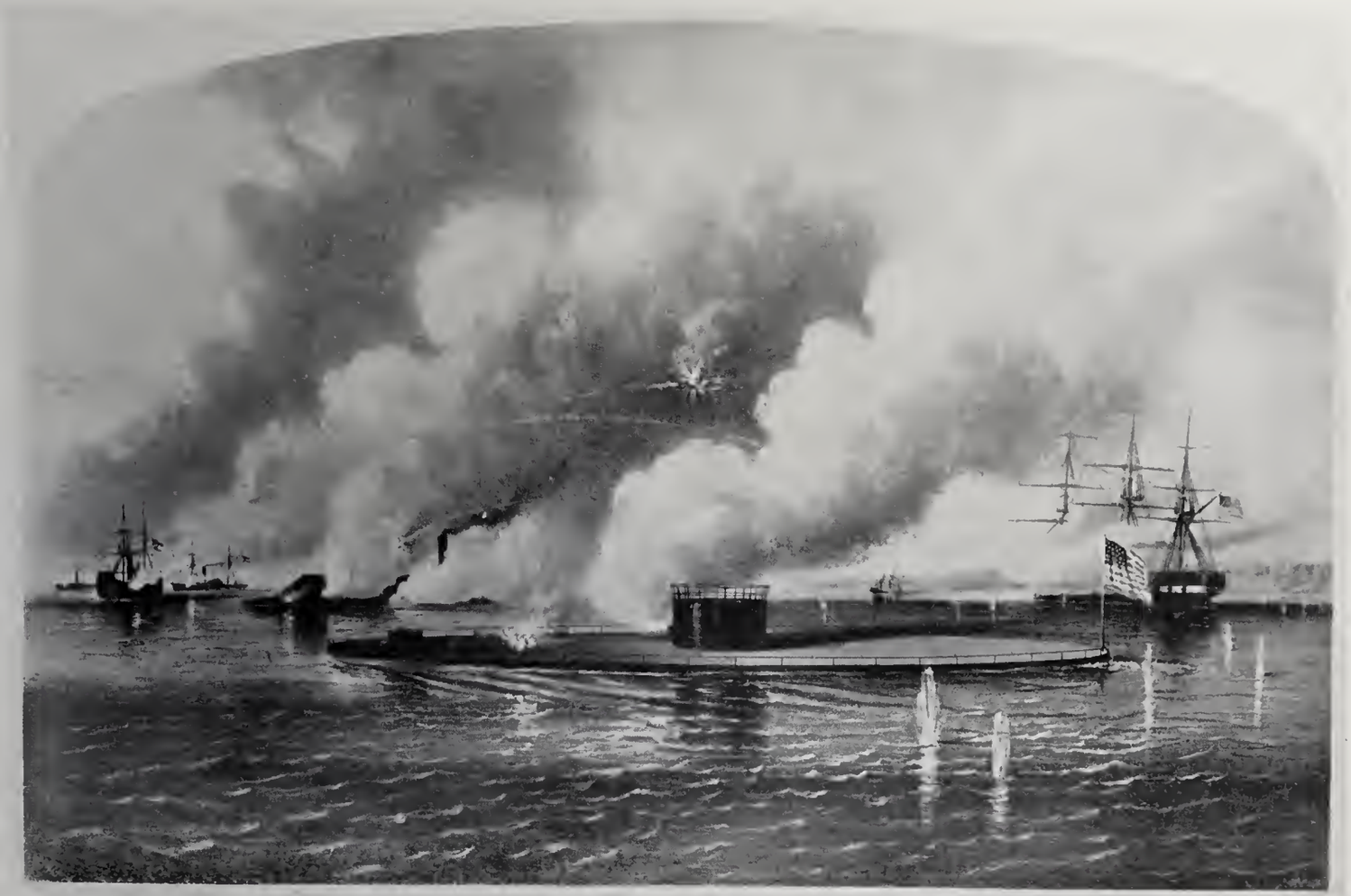
The Crews of the Blockade Runners.

The high wages paid by the blockade runners tempted men from all over the world, but the crews were almost entirely British and renegades from the North. A number of men deserted from the British men-of-war on the North American Station in order to take full advantage of these wages, and this naturally did not increase good feeling. A smart and successful captain was capable of earning as much as £1,000 per month, with pickings that were likely to run into quite as much again. The profits to be earned by the owners have already been indicated, and it was reckoned that if one cargo in three got through the venture was a success, although as a matter of fact the proportion was very much higher than this. At the same time expenses were very high and the risks considerable.

(*Macpherson Collection*)

THE U.S. SLOOP OF WAR "ST. LOUIS" AT SMYRNA, JULY 2, 1853
(From a Colour Lithograph after drawing by A. Poinsett, U.S.N., dated 1854)

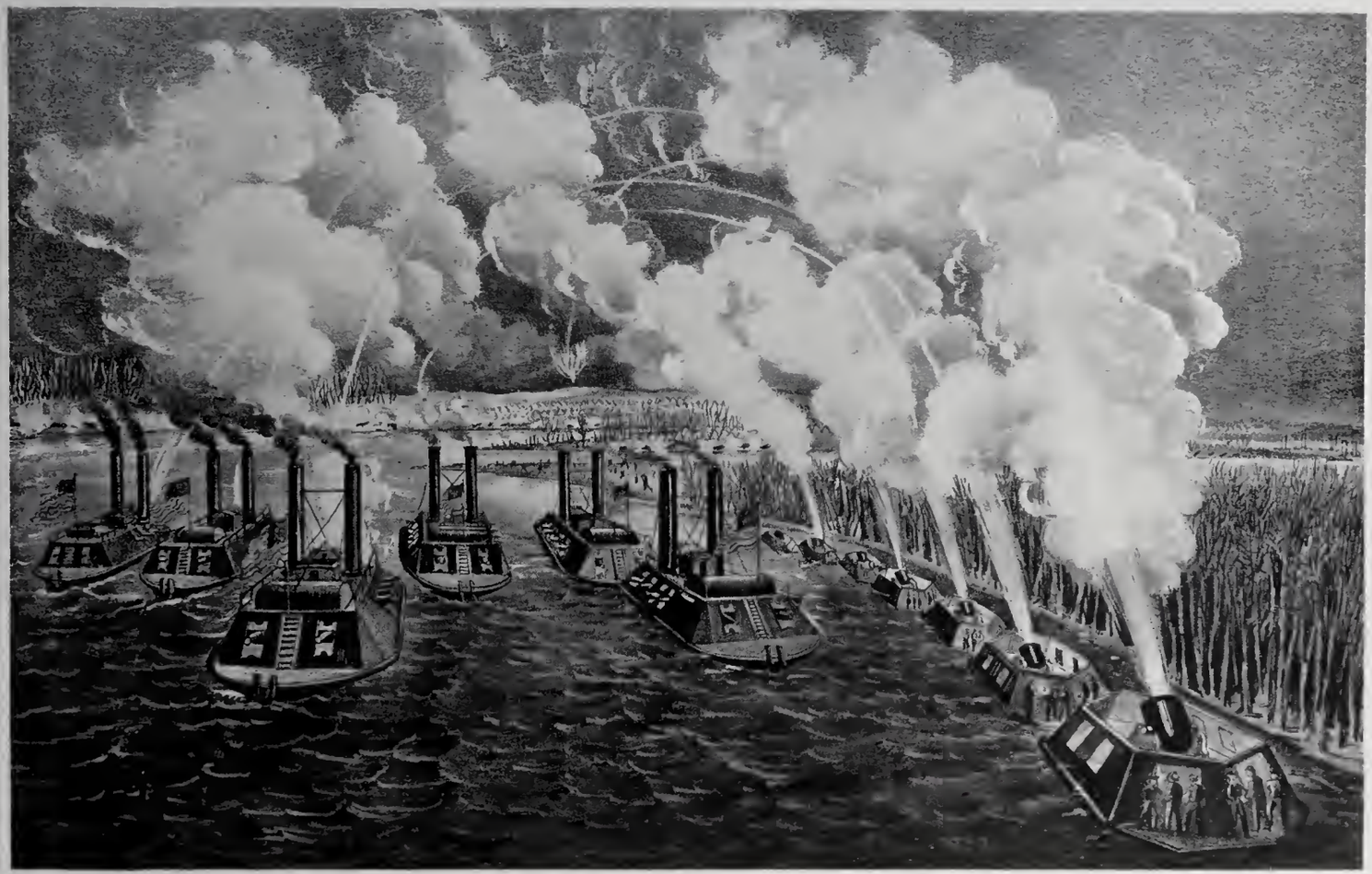
On this occasion Commander Ingraham demanded the release of Martin Koszta from the Austrian brig Hussar, *and the prestige of the American Navy in Europe was greatly increased.*



(*Macpherson Collection*)

ENCOUNTER BETWEEN THE "MONITOR" AND "MERRIMAC" IN HAMPTON ROADS, MARCH 9, 1862
(From a Colour Lithograph by Shearman & Hart, published 1862).

The dramatic appearance of the Monitor *in Hampton Roads just when she was wanted to save the Northern Fleet and the homeric battle next day, make one of the most interesting chapters in the history of the Civil War.*



(Macpherson Collection)

BOMBARDMENT OF ISLAND " NUMBER TEN " IN THE MISSISSIPPI RIVER, MARCH-APRIL, 1862
(From a Colour Lithograph published by Currier & Ives, 1862)

The conditions ruling on the Mississippi caused the construction of a number of curious men-of-war, stern wheelers with as much protection as was practicable being the favourite type.

(*Macpherson Collection*)

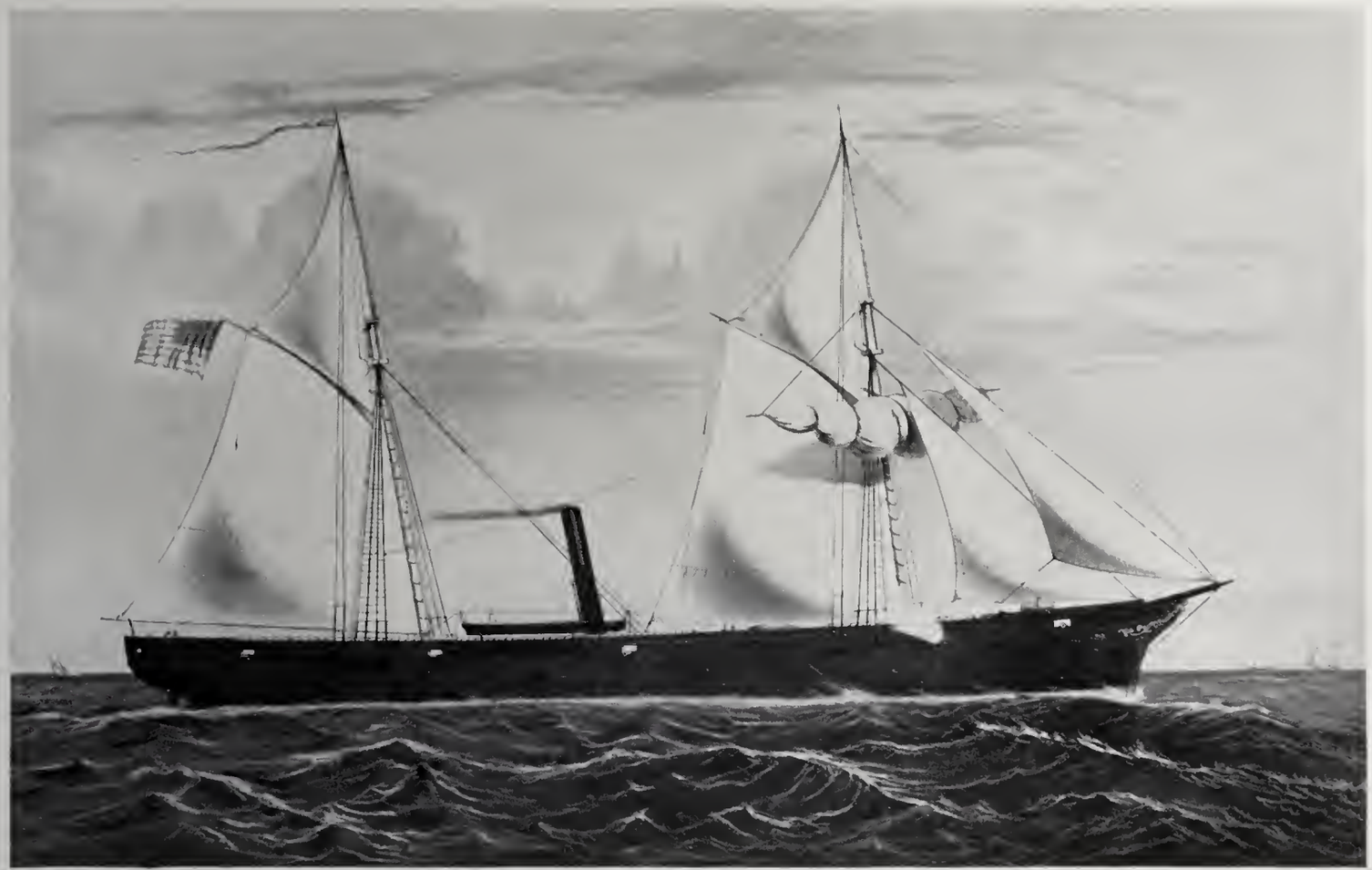
FARRAGUT'S FLEET PASSING THE FORTS ON THE MISSISSIPPI RIVER, APRIL 24, 1862:
THE FRIGATE "MISSISSIPPI" DESTROYING THE RAM "MANASSAS"
(From a Lithograph published by Currier & Ives, 1862)

The artist has allowed himself liberties with the size of the Manassas, *whose attack on the Federal Fleet was one of the most gallant actions of the war.*

(*Macpherson Collection*)

THE U.S. IRONCLAD STEAMER "NEW IRONSIDES," 3,250 TONS, 1,600 H.P.
(From a Lithograph by W. H. Rease, Philadelphia)

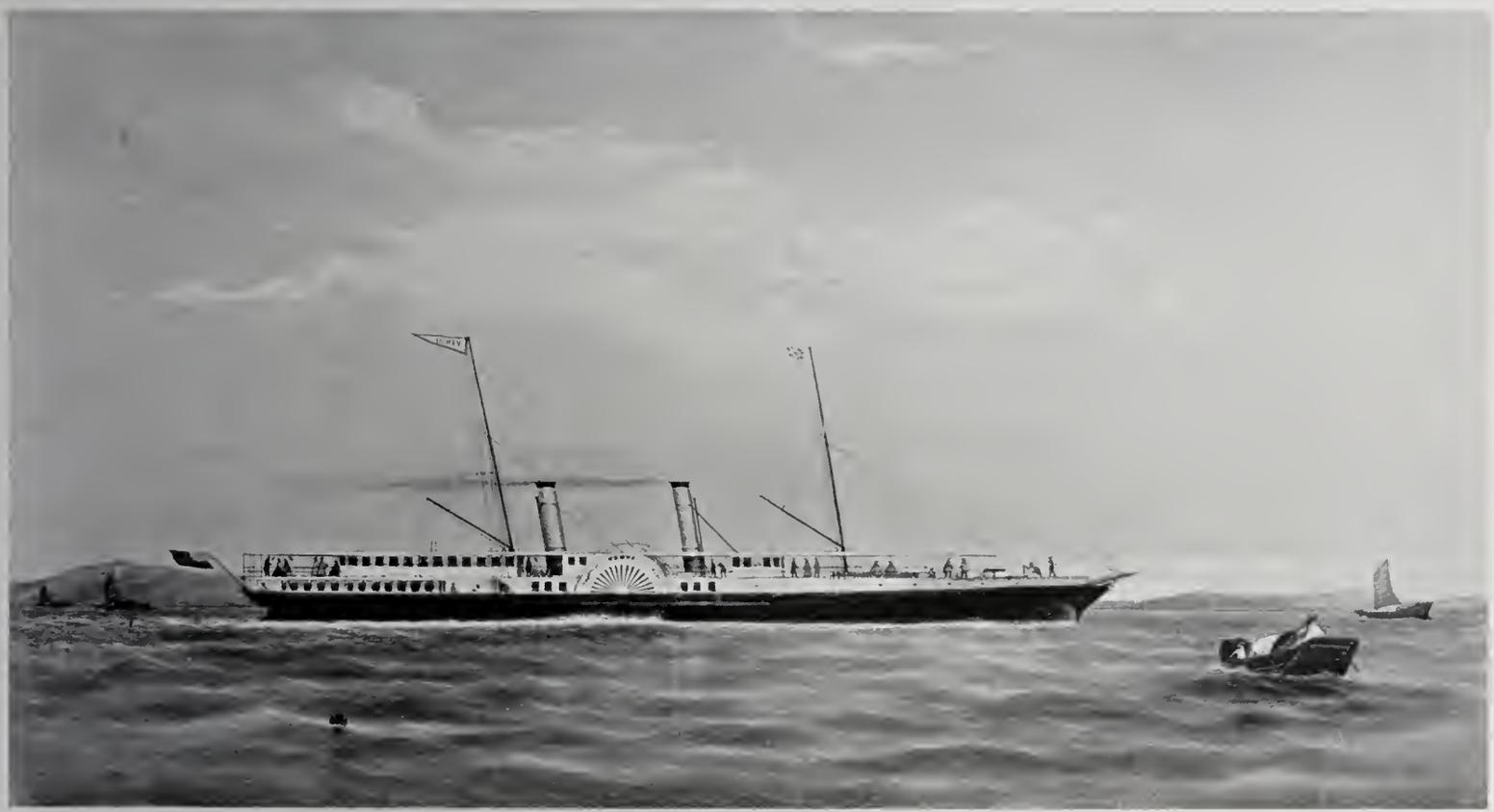
Although she was so overshadowed by the meteoric success of the monitors that the type was not repeated, the New Ironsides *was the real predecessor of the ironclad, which held the field in all the Navies of the world for many years afterwards.*



(*Macpherson Collection*)

THE U.S. STEAM GUNBOAT "KENNEBEC"
(From a Colour Lithograph by C. Hart, published 1864)

The heavy demand of material made by the blockade caused the Federals to build a large number of very useful little seagoing gunboats, which proved their value time and again.



(*Macpherson Collection*)

THE IRON STEAMSHIP "VENUS," 770 TONS, 240 H.P.
(From a Lithograph by and after Joshua Taylor, printed by Vincent Brooks, published 1863)

The blockade of the Confederate coast by the Federals caused a large number of British pleasure steamers to be bought as blockade runners, the Venus *being one of many.*

(*Macpherson Collection*)

THE CITY OF CHARLESTON, SOUTH CAROLINA
(From a Colour Aquatint by W. J. Bennett after G. Cooke, published 1838)

A rapidly growing seaport before the Civil War, the blockade runners gave Charleston wonderful prosperity for the time, and it recovered rapidly after the peace.

Bottling Up Charleston.

Early in the war an attempt was made to bottle up Charleston Harbour, as this would obviously be the centre of blockade running, and with its four channels—the Main Channel, the Swash Channel, the North Channel and the Beach Channel—by far the most difficult to blockade. The Navy Department brought a number of old ships, as strongly built as they could find and most of them old whalers, and, filling them with stone, scuttled them in rows on the Bar. Unfortunately, the tremendous tide race and the soft sand resulted in the ships speedily burying themselves, or else being carried out of position, and in a very short time they were not the slightest obstacle to the blockade runners.

The Loss of the Norfolk Navy Yard.

The Norfolk Navy Yard on the Elizabeth River was the main depôt for arms and munitions for the U.S. Navy, so that when war broke out in the spring of 1861 it was well stocked. The situation there when matters grew strained was very delicate, for it lay roughly on the border line, and any hurried act might have precipitated hostilities. At this time there were a few ships laid up in the port, and the screw frigate *Merrimac*, one of the finest ships in the U.S. Navy, was having her machinery overhauled. The garrison only consisted of a few marines and seamen, while the sympathy of the whole district, including all the workmen in the Yard, was with the South. As things were seen to be serious, the frigate *Cumberland* was sent up. The engines of the *Merrimac* were hastily re-erected with the idea of moving her to Philadelphia, but divided counsels began to cause delay, although Confederate troops were arriving in the neighbourhood and were erecting batteries that covered the Yard. The channel of the Elizabeth River was blocked as far as possible by sinking lightships. The chance of removing the newer ships was rapidly decreasing, but still delay took place, until finally it was decided to scuttle most of them and withdraw in the *Cumberland* with as many useful stores as could be crowded into her. Some effort was made to spike the guns in the depôt, but not much could be done. Commodore Paulding was sent to Norfolk just too late ; orders had been given two hours previously which practically made a present of the Yard to the Southerners. All he could do was to set fire to many of the navy yard buildings, but the result was distinctly disappointing. Besides 2,000 guns, large quantities of steel plates, machinery, shipbuilding materials and valuable stores of all descriptions fell into the hands of the Confederates, sufficient to permit them to maintain the struggle until they could get further supplies. Particularly valuable were the 300 Dahlgren guns of various sizes that had just been delivered. They were intended for naval work, but the Confederates used them wherever they could and they formed the backbone of their artillery.

The "Merrimac."

As has been said, the screw frigate *Merrimac* was by far the most valuable of the ships in the yard. The Federals contrived to destroy her very much more effectively than the other ships, and when the Southerners took possession she was burnt to the water's edge. They raised her and re-christened her *Virginia*, but she has always been known by her original name. She was housed over with a huge casemate made of 4-inch railway iron, and she was armed with six 9-inch Dahlgren guns and two 32-pounder muzzle-loading rifles. As such she was the most formidable man-of-war in the New World, and she was to fight one of the most memorable battles in naval history later on. It was a long time before the work was completed, however, and in the meantime the blockade maintained in the mouth of Chesapeake Bay was the most effective on the coast.

The Day of the "Merrimac."

Having finally completed the conversion of the *Merrimac*, Captain Buchanan, although he was supposed to be in the doctor's hands and only fit for bed, took her down the Elizabeth River on March 8th, 1862. When she left Norfolk she had workmen still on board and they landed at various places on the river bank as they finished their respective jobs. She had with her the *Patrick Henry*, partially protected with 1-inch iron and mounting twelve guns, a ship that was also known as the *Yorktown*, and the smaller steamers *Jamestown* and *Teaser*. Off Newport News lay the 50-gun ship *Congress* and the 24-gun *Cumberland*, with powerful batteries to back them, and three other powerful ships further down Hampton Roads. These ships should have been warned that the *Merrimac* was ready for sea, but they lay there without taking the least precaution. They did send a little gunboat to investigate the reason of the smoke that they saw over the land, but it was not until the Confederate ships were on them that they took the precaution to clear for action. The *Cumberland* and *Congress*, supported by the shore batteries, opened a heavy fire, but their shots bounced off the iron sides of the *Merrimac*, who did not deign to reply until she was within short range, when her forward 7-inch rifle did serious damage to the *Cumberland*. Steadily advancing, the *Merrimac*, which was specially converted as a ram, struck the *Cumberland* abreast her foremast, and it was immediately obvious that she was sinking. Lieutenant Morris was in command in the absence of his chief, and he gallantly refused to surrender, although his ship was making water fast and the *Merrimac* was hailing in shot and shell. Captain Buchanan had a brother who was acting as Paymaster in the *Congress*, and it was she that was next attacked. Lieutenant Smith fought his ship gallantly, but the *Merrimac* placed herself across the stern of the *Congress* and raked her time and again, without giving her a chance to reply. Finally, shattered and ablaze, the *Congress* struck her colours, but the consorts of the *Merrimac* were prevented from saving many of the crew by the fire of the batteries

ashore. The Federal ships from downstream attempted to join in the action, but they could make no impression on the ironclad's sides, and as night fell the *Merrimac* withdrew, ready to finish her work in the morning.

The "Merrimac" and the "Monitor."

The exploits of the *Merrimac* caused something like a panic in northern naval circles and all sorts of remedies were suggested. One was that they should scuttle some of their best ships, another was that they should stretch a fishing net across the river and so foul her propeller. But a better remedy was on her way up in the shape of the little *Monitor*, the ironclad which John Ericsson, the Swede, had built for the U.S. Government after he had been refused a hearing by the French and British. For a long time it was touch and go as to whether he would receive similar treatment from the United States, but finally the Navy Department Board accepted his plans and the *Monitor* was built. At the same time they stipulated that the money was to be refunded to the Government if the ironclad proved to be a failure. A hundred days after she was laid down she was launched, tried as soon as possible and then armed. She was under orders to go down to the Gulf of Mexico, when news of the *Monitor's* completion reached Washington and she was ordered to Newport News instead. To begin with she nearly foundered on the way down, but finally she reached the Capes on the afternoon of the *Merrimac's* famous action, the sound of which was heard as she entered. Lieutenant Worden had a good many repairs to carry out before she was fit for action, and his men were apparently worn out, but they gallantly put their backs into the work of setting things right and when the *Merrimac* came down to complete her work of the day before, she met the *Monitor* ready for the fray. The *Monitor* with her low freeboard was exceedingly difficult to hit, while the shot of the *Merrimac* glanced off her turret in precisely the same way that the frigate's shot had glanced off her own sides. It was really an indecisive action, with the balance very much in favour of the *Monitor*, but the *Merrimac* was lucky to withdraw in safety and had to be docked immediately she arrived at Newport. Her command then went to Captain Josiah Tattnall, of "blood is thicker than water" fame, but she was not able to do very much and eventually was withdrawn before the advancing Federals and scuttled by her own people. The *Monitor*, on the other hand, foundered at sea soon afterwards and drowned 16 of her men, but she had proved that her root idea was correct, and it was not difficult to improve on her design in matters of detail.

The Name of "Monitor."

There has been a good deal of discussion as to just how the name of *Monitor* came into being, but there is a letter actually in existence written by Ericsson himself to Gustavus V. Fox, the then Assistant Secretary of the U.S. Navy. It reads as follows; "Sir, in accordance with your request I now submit for your approbation a name for the

floating battery at Greenpoint. The impregnable and aggressive character of this structure will admonish the leaders of the Southern rebellion that the batteries on the banks of their rivers will no longer present barriers to the entrance of the Union forces. The ironclad intruder will thus prove a severe monitor to those leaders. But there are other leaders who will also be startled and admonished by the booming of the guns of the impregnable iron turrets. Downing Street will hardly view with indifference this last Yankee notion, this monitor. To the Lords of the Admiralty the new craft will be a monitor, suggesting doubts as to the propriety of completing those four ironclad ships at three and a half millions apiece. On these and many other similar grounds I propose to name the new battery Monitor."

The Potomac Patrol.

The patrol of the River Potomac was a trying and rather an exciting one. The river formed the boundary of the two combatants, but it must be remembered that there were many in the North who had but little interest in the fight and great interest in their own pockets, while there were still more in the South who wanted to slip across the river for some reason or other, invariably to the disadvantage of the Northern Government. Also the ships were constantly being bombarded by Confederate batteries or sniped by riflemen on shore. Occasionally minor landings were attempted, but it was not until towards the end of 1861 that the heavy batteries erected by the Confederates made it impossible to maintain the patrol with small craft. As soon as the Southerners retired from the banks of the river, however, the patrol was back again.

Cushing's First Exploit.

The officer who was afterwards destined to make a name for himself second to none in the U.S. Navy was Lieutenant Caleb Cushing, who in February, 1864, was in command of the gunboat *Monticello* on blockading duty off Cape Fear River. Smithville was the town in which the Confederates had their local headquarters, and Cushing, with Acting Ensign Jones, Acting Master's Mate Howarth, and twenty seamen, made up his mind to raid the town and to capture the Southern commander. They pulled silently into the harbour in two boats, and, concealing his men under an embankment, Cushing obtained all the information he wanted from some negroes and, with his two subordinates and one seaman, had the impudence to walk into General Herbert's headquarters, although it was only the width of a street from a barracks with a thousand men in it. The General was away, and the Adjutant-General was in such a hurry to run for the woods that he did not turn out the garrison, so that all Cushing could do was to capture an engineer officer, whom he took with him down to his boats. A few minutes afterwards the forts were opening a heavy fire, but he was back to his ship with his prisoner.

The Blockade of Charleston.

One of the greatest desires of the Federals was to reduce the port of Charleston. Not only was Fort Sumter the place in which war had

first broken out, but the city was the very heart of the South and its reduction would have made a huge difference. It was protected by strong forts and many obstructions in a tortuous channel, in addition to a large number of submarine mines. The Southerners had in the port the ironclads *Palmetto State* and *Chicora*, and they were reported to be building two more which were more powerful than anything that had been put into the water. At the end of January, 1863, the two original ships suddenly put to sea. The *Palmetto State* forced the Federal gunboat *Mercedita* to surrender, paroled her captain and then steamed on. Her colours were immediately re-hoisted, an action of her captain which has been bitterly denounced by both sides. The ironclad then battered the little gunboat *Keystone State* and next day the Confederates were so confident that they had raised the blockade that they took the French and Spanish Consuls out to see for themselves. They reported that they could not see any blockading vessels, a fact which is probably explained by the fog at the time. Shortly afterwards Admiral Dupont of this station received a reinforcement in the shape of the monitor *Montauk* and the blockade was as efficient as ever.

The Attack on Charleston.

The action of the Southern monitors determined the Federal leaders to attack Charleston and reduce its fortifications, although opinions were very divided on the possibility of this operation. The forts were undoubtedly very strong and there were rather exaggerated reports of the efficiency of the Southern submarine mines, but Dupont was given a big ironclad fleet and told to set about it. In the course of his bombardment the *Keokuk* got close under the guns at Fort Sumter and was promptly riddled by their shot, an incident which provided the first setback to the ironclad enthusiast. The fleet withdrew at the end of the day after an indecisive and very unsatisfactory action which certainly had not done much harm to the defences. The city was not evacuated until early in 1865.

The Ironclad "Albemarle."

The Confederates must be given every credit for the wonderful manner in which they contrived men-of-war in most discouraging circumstances. The *Merrimac* had shown that, while they had not the dockyards to build monitors, they could at least turn out ironclads of the ram type, which, when manned by determined crews, could do a good deal of damage. Although they could do it, however, it must not be thought that it was easy, for they lacked practically everything that was necessary. The case of the *Albemarle* may be taken as one in point. She was laid down in the beginning of 1863 at Edward's Ferry on the Roanoke River. Captain Cooke was the officer in charge of her construction, and he combed the country so thoroughly for iron for her armour that he soon became known as "the Tin-Can Captain." She was built in a cornfield, the only dockyard appliances being an ordinary blacksmith's shop. Yet they contrived to construct a ship

122 feet by 45, which drew 8 feet of water, was protected by four inches of iron, was driven by 400 horse-power engines with twin-screws and mounted two 100-pounder Armstrong guns. She was finished in April, 1864, and went down stream with her shipwrights still on board. The Federal wooden gunboats put up a gallant defence but she was too powerful for them and they suffered severely. They tried to sink her with gunfire and they tried with torpedoes, but she still remained the bully of the river until Lieutenant Cushing volunteered to torpedo her as she lay alongside the wharf at Plymouth. Two especially designed steam launches were sent down to him, but news of this reached the Confederates and they were ready to repulse any attack. The ironclad was moored alongside the wharf with 1,000 soldiers guarding her and double sentries all along the river. In addition they had fixed up a boom of logs, which should have prevented any torpedo boat getting near her. On the night of October 27th, 1864, however, Cushing crept up with fourteen men. They had passed through line after line of guards when suddenly a dog on the wharf detected them and commenced to bark, whereupon the Confederates were on the alert in a moment. Passing through a hail of musket fire, Cushing managed to jump the boom, nosed his torpedo under the ram's side and detonated it. The explosion was just in time, for the launch was directly under a 100-pound rifle loaded with canister, and had she been hit they would have had very little chance. As it was, the explosion of the torpedo threw up the muzzle of the gun and they only received the fringe of the charge. The launch was sunk and the crew had to swim for it. Cushing himself managed to reach the shore and hide in a swamp, making his way down to the fleet, more dead than alive, the next day. One man was drowned and the others were forced to surrender, but the *Albemarle* was sunk.

The Southern Submarines.

In the Spring of 1864 the Southerners reintroduced submarine warfare, for it will be remembered that the Americans made a determined attack on British men-of-war in New York with these weapons during the War of 1812. The first submarine, or rather semi-submarine, that they built was named the *David* on Biblical parallel and was a cigar-shaped ship 54 feet long, driven by a screw. She did not actually submerge, but when she was trimmed for the attack only her funnel and conning tower showed. She was armed with a spar torpedo. Under the command of Lieutenant Glassell she finally went out after several fatal trials and attacked the *New Ironsides*. The ironclad was uninjured but the explosion of the torpedo swamped the little *David*. Two of her people contrived to get her back to Charleston. Meanwhile, another *David* had been built at Mobile and sent to Charleston by rail, where she contrived to make a successful attack on the U.S.S. *Housatonic*, which sank with five lives. The submarine went down with all hands and both wrecks were discovered by divers shortly after the war.

The Campaign on the Mississippi.

The Confederates early recognised the importance of the Mississippi and fortified its banks, while the Federals immediately set to work to create a river fleet. Commander James Buchanan Eads deserves great credit for the work that he did in this, co-operating with Commander John Rogers and buying every suitable river steamer that could be converted into a gunboat. Some of them were protected by coal, others had thick oak bulwarks, while others were described as "cotton-clads," and were protected by bales of cotton. Meanwhile, Eads set to work to build a number of small but heavily armed gunboats. There were no seamen to spare to man them—it was difficult enough to find lower-deck ratings for the ships at sea—so that they were manned very largely by soldiers, but they did exceedingly useful work.

The "Manassas."

Probably the queerest little ship that the Confederates commissioned about this time was the ram *Manassas*, which was built privately at New Orleans on the agreement that her owners should have 20 per cent. of the value of any Federal vessel that she might destroy, but which was afterwards purchased by the Confederate Government. She had originally been the twin-screw tug *Enoch Train*, but had been given a 32-pounder gun, strengthened forward and armoured with five inches of wood and an inch of railway iron. Her bow was solid for 20 feet to permit her to ram, and with her crew of 35 men she did gallant service. In the lower Mississippi she had as consort the ironclad *Louisiana*, which was an improved *Merrimac*, and a number of small river steamers.

Farragut in the Mississippi.

While Eads's gunboats were harassing the Confederates on the Upper Mississippi, it was decided to work up from the mouth of the river with a powerful force, and David Glasgow Farragut was put in command. The mouth of the river had of course been blockaded since the early days of the war, but the blockade had not always been successful and on one or two occasions the Southerners contrived to deliver shrewd blows. Fort Jackson and Fort St. Philip were the two principal works that covered New Orleans, but the Confederates had not maintained them as they should have. Farragut's flagship was the *Hartford* and he was given a powerful force of the older type of frigate supported by a few steamers. The bar of the river was a serious obstacle, but finally all the principal ships were got over, although in some cases it took over a week to move them a few hundred yards. Farragut's plan was to run past the forts and deal with them after he had reduced the city. The Confederate fleet which backed the defences was powerful but heterogeneous, while there was also a heavy boom which had unfortunately been damaged by floods. Farragut opened a preliminary bombardment with his mortar schooners, while the Southerners attempted to destroy the wooden ships of the fleet with fire-ships. Carefully mark-

ing out the stream beforehand, Farragut made his famous dash in the early morning, the Confederates making very gallant efforts to stop him but being unable to do so. This was partly due to the confusion of their recruits, for many shells were found to have been fired with the protecting pieces still on their fuses. However, with considerable loss the Federals finally reached New Orleans, which surrendered almost immediately, the forts hauling down their flags soon afterwards. After New Orleans, Farragut contrived to pass the defences of Vicksburg in similar fashion, but it was some time before the whole river was in the hands of the Northerners.

The Battle of Mobile Bay.

In August, 1864, Farragut was back at his old station in command of the Gulf Squadron, which by then had been greatly reinforced both with big ships and monitors. Mobile was one of the principal strongholds of the Southerners and had been very troublesome as a haven of the blockade runners, but it was regarded as almost impregnable. The entrance to the bay was through two passages, one on either side of Dauphin Island. One was entirely shallow and had been well defended by the Confederates; the other had a deep channel and was protected not only by lines of stakes and submarine mines but two powerful forts, Fort Gaines on Dauphin Island and Fort Morgan. Inside there were a number of Confederate ships, but it was the forts that mattered most. The Federal ships were lashed in pairs for mutual support, and advanced under a hail of shell. The *Tecumseh* was sunk by a submarine mine, and for a moment the line was in confusion, but Farragut pushed ahead with his historic "Damn the torpedoes." The final phase of the battle was when the Confederates' ram *Tennessee*, under the Captain Buchanan who had fought the *Merrimac*, faced the whole Federal fleet until finally she was forced to surrender. Soon after the battle the forts surrendered, and one more port was closed to the blockade runners. After Mobile Bay there were a number of actions up and down the coast, one Confederate stronghold after another being reduced, but individually they were not of very much interest from the naval point of view.

The Reduction of Wilmington.

The last job that had to be done by the U.S. Navy was the reduction of Wilmington, for it was the last of the great bases left to the blockade runners and Robert E. Lee's army was dependent upon it. It was protected by Fort Fisher, which had been placed right at the mouth of the river in order to keep off blockading ships and which was therefore within the range of heavy broadside ships at sea. The Federals collected a huge fleet to attack it and also prepared the steamer *Louisiana* as a fire-ship, loaded with 150 tons of powder. She passed through the Confederate line as a blockade runner but did no harm whatever to the fort by her explosion. The fleet then set to work in earnest, co-operating with General Butler in command of the attacking land forces. The concentrated fire of the fleet did little damage to the

(*Macpherson Collection*)

NEW ORLEANS IN 1841

(From a Colour Aquatint by W. J. Bennett after Sketch by A. Mendelli, published 1841)

Naturally a centre of great activity during the Civil War, New Orleans always retained its French atmosphere.

(*Macpherson Collection*)

DUEL BETWEEN THE "ALABAMA" AND "KEARSARGE" OFF CHERBOURG, JUNE 19, 1864
(From a Colour Lithograph after a Drawing by Durand Brager, published by M. Knoedler, New York, 1864)

Like many another, this action was won by the superior gunnery of the Federal ship. The yacht Deerhound, *which saved so many of the survivors, is seen in the background.*

(*Macpherson Collection*)

THE U.S. STEAMER "NASHVILLE" ENTERING THE PORT OF HAVRE
(From a Lithograph after Le Breton)

The Nashville, which was built for the coasting trade, but which had made some smart transatlantic passages, was the first of the well-known Confederate corsairs.

(*Macpherson Collection*)

ADMIRAL DAVID G. FARRAGUT, U.S.N. (1801-1890)
(From a Coloured Engraving by J. R. Chapin, published 1865)

Although a Southerner by birth, Farragut decided to remain loyal to his service, and was the most successful of the Federal Admirals.

(*Macpherson Collection*)

THE BATTLE OF MOBILE BAY, AUGUST 5, 1864
(From a Colour Lithograph published by Currier & Ives, contemporary)

This print shows the old type broadside ship, the improvised paddle gunboat, the ironclad ram Tennessee, *which the Confederates built in face of so many difficulties, and the primitive monitors which defeated her*

(*Macpherson Collection*)

ADMIRAL PORTER'S ATTACK ON FORT FISHER, NORTH CAROLINA, JANUARY 15, 1865
(From a lithograph after F. F. Palmer, published by Currier & Ives, 1865)

Although it was one of the last actions of the war, the attack on Fort Fisher employed every conceivable type of ship under the Federal flag.

THE BRAZILIAN WAR STEAMERS "COLOMBO" AND "CABRAL," BUILT BY J. & G. RENNIE, OF LONDON, AND ARMED BY WHITWORTH
(From a Colour Lithograph by and after T. G. Dutton, published 1866)

The Brazilian Navy adopted ironclads early, but for years they were checked by the tiny navy of Paraguay.
(From a print lent by Messrs. T. H. Parker)

(*Macpherson Collection*)

THE PASSAGE OF THE CURUZU, FEBRUARY, 1868
(From a Lithograph after A. Martinet, undated)

The manner in which the absolute power of Lopez caused the tiny republic of Paraguay to hold out against its three powerful neighbours for years, makes one of the most extraordinary stories of fighting against odds in Naval history.

Confederate works during the whole of the day, while most of the Federal casualties were caused by their own unreliable Parrot 100-pounder rifles bursting. A few days later the attack was renewed with 75 ships, the army then being under the command of General Perry. Two days were spent by the fleet bombarding and then a naval brigade of 1,600 men landed and made a gallant attack on the north-east corner of the fort. They were repulsed with heavy loss, but while the defenders were neglecting the west side the army effected an entrance and after some of the most conspicuously gallant fighting in the war Fort Fisher fell and with it the fate of the South was sealed.

The "Trent" Affair.

It is now freely admitted in American circles that the conduct of the Northerners towards neutrals was often overbearing, and quite as bad as that of the British authorities which brought about the War of 1812. The most unfortunate incident of the whole war was the famous *Trent* affair which occurred in November, 1861. The Confederates were sending across two agents to Europe, Messrs. Slidell and Mason, and they embarked in the Royal Mail Steam Packet steamer *Trent*. In the Bahama Channel she was stopped by the U.S. cruiser *San Jacinto* and Captain Wilkes of that ship forcibly removed the two agents. He refused to take possession of the ship and send her to a U.S. port to be properly condemned, which would have legalised his action, with the result that it was indefensible in every way and President Lincoln immediately disavowed it. Matters were not smoothed over, however, until the tension between the British and American peoples had reached a dangerous pitch and when there was even very active talk of war. This action was very largely responsible for the strong British sympathy for the South, and it must not be forgotten that no British-built corsairs had been sent to sea before it occurred.

The Southern Commerce Destroyers.

To the average European the American Civil War will always be associated with the remarkable exploits of the Southern commerce destroyers. At a very early stage of the proceedings the Confederate Naval authorities realised that they would have not the least chance of victory over the Union forces at sea in open battle, and therefore determined to do all the damage they could by destroying the commerce that was their very life blood. They therefore commissioned a number of small craft to prey on any Northern merchant or supply ship who ventured near the Southern coast, and as the Northerners appear to have been obligingly careless in this respect many prizes were made by ships which one might have considered to have been absolutely useless. Their enemies were not slow to learn and before long it was impossible to hope for success in this type of warfare and accordingly the Confederates had to turn to regularly commissioned commerce destroyers which made up in the efficiency of their crews the deficiencies of their material.

The Confederate Cruiser "Sumter."

The first of the noteworthy Confederate cruisers was the passenger steamer *Habana*, a small and inefficient vessel which normally ran between the United States and Cuba. She was renamed *Sumter* and prepared for sea at New Orleans as early as April, 1861, when the command was given to Captain Raphael Semmes. He will appear very prominently in the story later, but when he was first appointed there were grave doubts as to the wisdom of the Confederate Navy Department. He had certainly done well in the Mexican War but he was a very difficult man to get on with and most of his contemporary officers regarded him with very mixed feelings. He had the greatest difficulty in escaping from New Orleans in the *Sumter*, which was wretchedly slow, but as soon as he was clear of the Federal cordon he set about destroying American commerce in the West Indies. He was cornered in Martinique by the U.S.S. *Iroquois*, but he contrived to slip out in safety—the first instance of the remarkable efficiency as a corsair captain which he was afterwards to display—and continued his career. He took one or two more prizes and was finally blockaded at Gibraltar, where the British authorities insisted on a very strict interpretation of their neutrality. Accordingly he paid off the ship, which afterwards became a successful blockade runner, and dispersed his cosmopolitan crew while he himself awaited orders in Europe.

The "Florida."

The first corsair which caused trouble between the British and the Federal authorities was the Confederate steamer *Florida* which was specially built as a man-of-war. The British authorities were satisfied with the assurance that she was intended for the Italian Government, and when their eyes were opened to the mistake that they had made their attempt to detain her was too late. It was inefficiency on their part, but there were plenty of instances of this on both sides of the Atlantic at this time. She was armed off a deserted West Indian cay but there were no men available to man her and eventually Captain Maffitt had to take her into a blockaded Confederate port to get men. In January, 1863, she got to sea again in spite of the blockade and immediately began to take a number of prizes. Some of these were lightly armed and employed as tenders. The *Florida* refitted in a French port and then recrossed the Atlantic, where she caused a panic in New York. Eventually she was captured in the neutral port of Bahia by the U.S.S. *Wachusett*. The Northern authorities disavowed the action of the captain of the *Wachusett* and he was ordered to return the *Florida* to Brazil, but rather than do this he opened her sea cocks and sank her in deep water.

The Building of the "Alabama."

While the *Florida* was preying on Northern commerce the famous corsair cruiser *Alabama* was being built at Birkenhead. To begin with she was given no name, for it was felt that it would be useless to expect

her to do anything if her nationality were betrayed so easily, while the practice of giving Confederate ships foreign-sounding names was already beginning to wear a little thin. Accordingly she was launched under her building number of 290, a magnificently designed cruiser with a displacement of just over 1,000 tons, a speed under steam of rather more than eleven knots and good sailing qualities. Her real destination was obvious before she sailed, but the orders of the British Government to stop her were circumvented by the pretext that she was going on a short trial cruise. The obvious precaution of putting a bluejacket guard on board was neglected because there were no naval men handy at Liverpool and it was this neglect that caused the whole trouble. She picked up a scratch crew, was joined by Captain Raphael Semmes in the Azores, and shipped a heavy armament. It is worth noting that several of her lower deck ratings hailed from the Northern States. In the end she hoisted her pennant with a half-trained ship's company and an armament of one 8-inch, one 100-pounder gun, and six 22-pounders which were of very poor quality and gave a lot of trouble.

The Cruise of the "Alabama."

Being commissioned in the Azores, Captain Semmes looked out for prizes in the immediate neighbourhood and had not the least difficulty in finding them. He then worked across the Atlantic to the neighbourhood of New York, taking prizes all the way, and when the Federals began to send powerful ships after him there he made his way down to the South American coast. He then doubled back into the Gulf of Mexico, sank the feebly armed U.S. gunboat *Hatteras* in January, 1863, and worked out through the West Indies to his old happy hunting ground in mid-Atlantic. Once again the Federals sent an overwhelming force against him, so that he went down south to the Brazilian coast, captured numerous other prizes, and when things began to get hot for him in those waters went across to Cape Town and then on into the East Indies. American prizes in the Indian Ocean were comparatively few, so that in February, 1864, he was back in South African waters and recrossing to Brazil. By this time his luck seemed to have deserted him and with only an occasional capture he went across to Cherbourg, where he went into dock for very necessary repairs.

The End of the "Alabama."

As soon as the *Alabama* reached Cherbourg the U.S. sloop *Kearsarge*, under the command of Captain Winslow, was informed of the fact at Flushing and immediately went down to wait for her to come out. His ship was of very much the same size and speed as the *Alabama*, mounting two 11-inch guns, four 32-pounders, and one 30-pounder rifle. Captain Winslow took the precaution of running his spare chain cable up and down his side over the machinery and covering it over with light planking, giving himself a very useful armour belt which might have decided the action but which as a matter of fact was never hit. Whatever might be said against Semmes, there is no denying that he was a brave man, and immediately the *Kearsarge* appeared he signified his

willingness to fight her, forgetting that his duty to his flag was to destroy merchantmen and not to engage in an action, no matter what his chances of success might be. As a matter of fact his chances of success were small, for although his men were well trained in most respects he had been forced to husband his ammunition so carefully that they had received practically no practice in gunnery, while the men of the *Kearsarge* were trained far more thoroughly than in most ships of the time.

The action took place on Sunday, June 19th, 1864, the ships circling round one another time and again until they were fighting at 500 yards range, when the big guns of the *Kearsarge* did terrible damage. Finally the *Alabama* was so damaged that she was forced to cease fire and make for French waters, but before she could reach them she had to surrender in a sinking condition. The *Kearsarge* requested the British steam yacht *Deerhound*, which had come out to let the owner's children see a battle, to pick up the survivors, and as soon as she had done so she made sail for England.

The Result of the "Alabama's" Cruise.

The cruise of the *Alabama*, one of the best known corsair commissions in the history of naval warfare, resulted in 67 sailing ships and one steamer being captured, 53 of which were destroyed. Several were bonded back to their owners, the ransom to be paid when the Confederate States were acknowledged, but as this never came to pass the Northern owners of course saved their money. The effect on Federal commerce was colossal. The whole of the commercial North was in something of a panic, while a large number of magnificent ships were hurriedly transferred to British and other flags in order to avoid the possibility of being captured. Some American writers have endeavoured to give the cruise of the *Alabama* as the reason for the decline of the United States flag at sea, but this appears to be an undeserved slur on a magnificent maritime nation. The British commerce destroyers of the 1812 War reaped a far richer harvest, yet the American ships continued to go to sea and the spirit of the nation had not declined since those days. The fact that American builders had not realised the necessity of an immediate change from wood to iron construction was the real reason, but the *Alabama* got blamed and her cruise was the cause of a good deal of very bad feeling between the two countries.

Other Confederate Cruisers.

Other cruisers contrived to do a good deal of damage to Northern shipping, among them the *Nashville*, a ship of 1,300 tons which had been seized from American owners and sailed from Charleston in 1861. She only made two prizes and was then converted into a blockade runner. The *Georgia* was originally the British steamer *Japan* and contrived to sail from the Clyde the day before orders arrived to detain her. She was not a great success although she captured nine prizes before she was sold, a result that was due more to luck than any virtue of her own. The *Sea King* was another British ship which became the *Shenandoah*, the blockade runner *Atlanta* became the *Tallahassee*, and

there were other ships of minor importance. Had the U.S. Government only followed the obvious plan of stationing cruisers on the various trade routes these ships would probably have done far less damage than they did; as it was the Northern ships always arrived on the spot just after they had sailed for a fresh cruising ground.

CHAPTER IV
THE HALCYON DAYS OF SAIL

The Beginning of the Clippers.

It was really the end of the war of 1812 which brought speed at sea into prominence. Until then the East Indiamen had jogged along in their comfortable way, speed being their very last consideration, and the merchants had been quite content to wait for their goods. Had they not been so patient, it is very doubtful whether any difference would have been made. The only ships which attempted any speed were the ships engaged in what was known as the perishable cargo trade —fruit and slaves. The exception to this rule had been the Americans, who had always built for speed for the purpose of evading the coast-guard cruisers which the Spaniards built in the vain hope of preserving their West Indian trade. During the war they continued to build for speed for privateering purposes, and when peace was restored they saw the opportunity of using this quality in general trade. Their ships made the fastest passages to the Oriental markets and profited accordingly. As the end of the American War practically synchronised with the end of the Napoleonic Wars and the consequent revival in trade, the other maritime nations, particularly the British, began to demand higher speed and more prompt delivery of goods. So the race for speed began and the main aim of the naval architect turned from seaworthiness and tonnage capacity to increased speed. It must be remembered that freights in general ran high, but everybody was willing to buy, otherwise the clipper ship era might never have dawned.

The Early Packets.

The first ships to feel the effect of the American idea of speed to a marked degree were the Atlantic packets, which began to carry passengers and mails regularly backwards and forwards across the Atlantic in 1816. Their predecessors were slow and cumbersome, they were built for speed, and although this did not make for comfort it led to the construction of the clippers. The famous Black Ball Line started with four ships of 400 tons apiece, and under men who had learnt to clap on sail when they were commanding privateers they began to show what speed could do. They ran between New York and Liverpool on a fortnightly schedule, and it was wonderful what remarkably good time they kept considering that they were dependent on the weather. As their name became known, so their size and accommodation increased,

but it was many years before the wretched emigrants in the 'tween-decks had even the smallest elements of comfort.

The Famous " Dreadnought " and Her Passage.

Although it is impossible within the limits of a single chapter to notice many of the famous sailing ships of the period, no account would be complete without at least some mention of the *Dreadnought*, the most famous of all the sailing packets on the North Atlantic. She was built at Newburyport for the Red Cross Line and was a big ship of 1,400 tons. That was in 1853 and she immediately proved herself a flyer, time and again carrying the mails between the steamer sailings and doing it nearly as quickly as they did. She had some wonderful passages to her credit, 13 days 11 hours from New York to Liverpool in 1854 and in March, 1859, her world famous run of 13 days 8 hours. This is acknowledged, but there has been a good deal of dispute as to whether her time from Sandy Hook to Queenstown was 9 days 17 hours as claimed. If it is true it is probably the most wonderful passage ever put up by a sailing ship in any sea, and although it is very dangerous to be dogmatic on a subject which has aroused so much controversy the evidence is very much in favour of this record. Her famous captain was Samuel Samuels and he was a wonderful character in every way. He was as great at cracking on sail as he was in suppressing mutinies by the only methods that were acknowledged by the Liverpool " packet rats." He held the command until 1863 and soon afterwards she was put on the Californian trade. She was wrecked off the South American coast in 1869.

The " Great Republic."

Nearly as important as the *Dreadnought* in point of speed and more important in point of size was Donald McKay's famous masterpiece the *Great Republic*. She was built in 1853, his idea being that there was a future for big American ships in the Australian trade. No practical shipowner would join him in the venture so that he decided to run it himself and to get her vast size he had to evolve the most ingenious system of construction. To economise in her crew she was given double topsails and a steam engine on deck. Originally she was four-masted, but after being towed round to New York to load her first cargo she caught fire and was gutted, while the grain she carried swelled and strained her hull very badly indeed. She was bought by Captain N. B. Palmer, who had her rebuilt and then sold her to New York owners. She made some splendid passages, but she was too big for normal work although she did very well as a transport to the Crimean War and during the Civil War. She finally foundered off Bermuda in 1872.

The Indian Trade.

After the North Atlantic, the speed craze spread to the East, but more slowly. In 1814 the trade of the East India Company, which had been regarded as the strictest monopoly ever since its foundation,

was thrown open as far as India itself was concerned, and the host of interlopers which had been operating on the coast for some years past were able to do so openly. The merchants of Manchester, Glasgow and Bristol attempted to get the trade to China opened at the same time, as it was by far the more profitable of the two, but in this they were prevented. It was apparently the ships' husbands who had the privilege of supplying tonnage to the East India Company who prevented the opening of the whole trade; their reasons are obvious.

The "Earl of Balcarres."

The high water mark of East Indiaman construction was reached in the *Earl of Balcarres*, of 1815, one of the few East Indiamen with two tiers of guns. She was of 1,417 tons burthen and had a crew of 130 men. This crew consisted of her captain, six mates, two doctors, six midshipmen, the purser, boatswain, carpenter, gunner, armourer, master-at-arms, baker, butcher, poulterer, caulker, cooper, sail-maker, two cooks, two stewards, eight boatswains, the gunner's, carpenter's, caulker's, and cooper's mates, seven servants for the officers and fifty-eight seamen. This was an extreme crew for an East Indiaman and was not often reached. In addition, like all East Indiamen, she had the right of shipping five supernumeraries.

The Disaster to the "Kent."

One of the greatest tragedies in the history of the Indian trade was the loss of the *Kent*, a first-class Indiaman of 1,350 tons, soon after she sailed on her maiden voyage in February, 1825. She was to go first of all to Bengal to land troops and a certain number of passengers, and then on to China. She met with very heavy weather, and in going into the hold to see if everything was secure one of her officers had the misfortune to drop a lamp on a bilged cask of spirits. It was immediately ablaze, and as the ship was already battened down in terrible weather, the situation was a very serious one. Every effort was made to put out the fire, but without avail, and in the meantime the dense smoke, entering into the 'tween-decks with the hatches battened down, had suffocated some sick soldiers, women and children. In their efforts to quench the fire large quantities of water were admitted into the hold, and soon there could be no doubt that the ship was sinking. At this juncture the 200-ton brig *Cambria* appeared on the scene, and immediately made preparations to save what lives she could. The soldiers were fallen in on deck, and their officers prevented any sign of rushing the boats by drawing their swords. Women and children were packed into the boats and sent across to the *Cambria*. It was found impossible to get all her people away, principally by their own fault, but over 600 were packed into the little *Cambria* and taken to Falmouth, while several others were saved by the ship *Caroline*, who was attracted to the spot by the explosion of the magazine. In all 82 lives were lost, and 600 odd saved in circumstances which made it appear impossible that there could be a single survivor. The East India Company presented the captain of the *Cambria* with £600, the first mate

£100, and compensated her owners for all loss and demurrage, as well as distributing a generous purse among her seamen.

The Last of the East Indiamen.

It has already been recorded how the ships of the East India Company were not run directly by the Court of Directors, but by " Ships' Husbands," but all this was swept away in the 'thirties. The Company had already been deprived of their monopoly to India in 1814, and in 1832 the subject came up before Parliament again. They were then deprived of the last of their monopolies, that of the China Trade. The Commercial Charter terminated in April, 1834, and it being by then quite obvious that they could never hope for the old profits they caused all the Indiamen to be sold or paid off to their ships' husbands and confined their maritime activities to the Navy which they still maintained in the East. Some of the East Indiamen were run for years, either as free traders, as transports, or as convict ships, but many of them were broken up immediately they left the Company's service, their rich fittings and stout materials ensuring a good price. Many of the old East India Company's ships' husbands soon became the crack shipowners in the country.

The Transport of Convicts.

At the beginning of the period convicts to the penal settlement in Australia, Ceylon and elsewhere were generally taken out by East Indiamen, who then had the right to go where they willed to pick up a cargo. When the East India Company sold its fleet, however, the service was put up for tender and ships were chartered as they were wanted. Unfortunately the Government had no intention of paying any large sum, with the result that they got the very worst tonnage on the market and the poor convicts suffered accordingly. Their sufferings were due not only to the inadequate tonnage in which they were transported, but also to the opportunities that were given for graft of all sorts, opportunities which were eagerly taken by the officers and officials in charge of the ships.

The Blackwallers and Others.

When the East India Company decided to dispose of its fleet and retire from the shipping business in 1834, there was an immediate scramble for its tonnage and its trade. Numerous owners who had been ships' husbands under the Company used their experience to nibble at the Indian trade, and although some of them hailed from the north-east coast, the class of ship used was generally lumped together under the title of the Blackwallers, or, more properly, the Blackwall frigates. This name came from the principal yard in which they were built, Green and Money Wigram's at Blackwall. Very fine ships they were, inheriting much from the traditions of the frigate-built East Indiamen, but cutting down the appalling waste of that administration and aiming more at speed. Although they were not clippers in any sense of the word, the Blackwallers made some very fine passages.

(*Macpherson Collection*)

THE "JOSHUA BATES," PACKET SHIP, BUILT 1841
BY DONALD McKAY AT NEWBURYPORT, MASS.
(From a contemporary oil painting)

(*Macpherson Collection*)

THE "CÆSAR," WEST INDIAMAN, AT GEORGETOWN, DEMARARA, SEPTEMBER, 1839
(From a Colour Aquatint by C. Rosenberg after W. J. Huggins)

The West Indiamen were very much smaller than the famous East Indiamen, but they were wonderful little vessels, and made some excellent passages.

(*Macpherson Collection*)

THE "DEVONSHIRE," NEW YORK-LONDON PACKET, 1840
(From a Lithograph in Colours by T. G. Dutton)

The fast packets which ran across the Atlantic maintained their position in the emigrant trade long after the arrival of the steamers.

(*Macpherson Collection*)

THE "OWEN GLENDOWER," GREEN'S BLACKWALL FRIGATE (BUILT 1839), WHICH RAN FOR MANY YEARS IN THE INDIAN TRADE
(From a Lithograph in Colours by T. G. Dutton)

A fine example of the Blackwall frigate, which maintained many of the features and traditions of the old East Indiamen.

(*Macpherson Collection*)

EMIGRANTS DISEMBARKING AT SYDNEY COVE, N.S.W.
(From a Colour Lithograph by T. Picken after O. W. Brierly)

From the earliest times the authorities in Australia endeavoured to encourage free emigrants in addition to the convicts, but it was not an easy task until the discovery of gold.

(*Macpherson Collection*)

THE PACKET SHIP "MONTEZUMA," 462 TONS, BUILT 1846 AT QUEBEC
(From an Oil Painting by J. Heard, Contemporary.)

Some of the Atlantic packet ships were not by any means clippers, nor does their tonnage appear to have been sufficient to carry the large number of emigrants that were stowed into them.

(*Macpherson Collection*)

THE "WATERLOO," ONE OF DUNCAN DUNBAR'S SHIPS, BUILT AT SUNDERLAND, 1848
(From an Oil Painting by McFarlane, 1863)

Pile of Sunderland was one of the first North Country builders to rival the Thames-side yards in the construction of powerful sailing ships for the long distance trades.

(*Macpherson Collection*)

THE AMERICAN CLIPPER " SURPRISE," BUILT AT NEW YORK, 1850
(From an Oil Painting, Contemporary)

The discovery of gold in California gave a great impetus to the construction of clipper ships in the United States, for speed was everything and the prospectors cared little what they paid for their fares.

(*Macpherson Collection*)

THE "MARCO POLO," FAMOUS BLACK BALLER IN THE MERSEY AFTER COMPLETING HER SECOND RECORD VOYAGE TO MELBOURNE AND BACK, SEPTEMBER, 1853

(From a Colour Lithograph after T. Dove, published 1853)

The Marco Polo *looked so unpromising that no Liverpool shipowner would touch her, but she made the reputation of James Baines and Captain "Bully" Forbes.*

T. and W. Smith of Newcastle.

Among the best known of the sailing shipowners who followed the East India Company were Messrs. T. and W. Smith of Newcastle, who were originally shipbuilders. Thomas Smith was born in 1783 and William, his brother, in 1787, the sons of a ropemaker who apprenticed them to the crack shipbuilder then working on the Tyne, Mr. Rowe of St. Peter's. This firm built men-of-war as well as merchantmen, and about 1810 the Smith family bought the shipyard and ran it in conjunction with their rope walk. In the 'twenties they added a dry dock to their other activities, and in 1828 they built their first Indiaman—the *Duke of Roxburgh*, of only 417 tons. She was such a success that they went in for ship-owning just as seriously as for shipbuilding, and were soon the great rivals of Green and Wigram on the Thames. In 1836, on the death of their father, the two brothers changed the name of the firm to Thomas and William Smith, and in addition to their Indiamen they ran a fleet of coasting colliers. Mr. Thomas Smith died in 1876 and his brother in 1860, the son of the latter continuing the business until the old sailing ships were dead.

" The Tweed."

The most famous of the ships that are usually grouped together under the title of Blackwall frigates, although strictly speaking she did not come into the class, was Willis's *The Tweed*. She was originally built in India as a paddle frigate for the East India Company and named *Punjaub*, and into her construction were put the finest material and skill of the Bombay yards. Tradition has it that her lines were taken from a very famous French frigate which contrived to keep out of the way of British squadrons for many years in the Indian Ocean. Her first duty in 1855 was as a transport taking cavalry from India to the Crimea. She was one of a big convoy of steamers but before they had been long out she drew her fires, reduced sail and still managed to run out of sight of the rest of the convoy under full sail and steam. During the Indian Mutiny she did good service by offering a refuge to the women and children who were in the greatest danger, and later her seamen did splendid work as a brigade ashore with two 12-pounder guns. When the East India Company gave up its navy old John Willis bought *The Tweed*, took out her engines, and ran her as one of the most successful sailing ships he had. She ran to India, to the Far East, to New Zealand, as a hospital ship, as a trooper, as a relief ship to the starving Indians during the great famine, as a first-class passenger carrier and as a wool ship, and in every condition she did well. In the late 'eighties she came to grief off the South African coast and many of her timbers still form the roof of a church in Port Elizabeth.

The First Real Clipper.

There has been a good deal of discussion as to the exact definition of the term " clipper ship," as it is a popular phrase rather than a naval architect's. It is generally accepted, however, as a ship built primarily for speed, having raking stem and stern posts. The first ship that is

given the name is generally the *Ann McKim*, a little vessel of 493 tons, which was built for Isaac McKim of Baltimore in 1832. He had her designed very much on the lines of the American privateers for the China trade, where her speed immediately gave her a prominent position. She could not carry very much cargo, but opium and other China cargoes ran to high values and speed was everything.

The Opium Clippers.

The opium ships had to be fast vessels for three reasons. Firstly, their cargo was too valuable to be kept long on shipboard; secondly, the China seas were still infested with pirates; and thirdly, although most of the mandarins were in the pay of the opium runners and found it a very profitable business they occasionally awoke to their responsibilities to the central Government and sent out their junks in pursuit. They seldom, if ever, caught one of the fast little brigs or schooners, while the depôt ships which lay at most of the Chinese ports were too powerful to be touched. These opium clippers were very much on the small side and were so fleet that their trade continued all through the opium war of 1840. They did not give way to the steamer until the early 'fifties.

The "Falcon."

One of the most famous ships of her time, both in yachting and opium-running circles, was Lord Yarborough's ship-rigged *Falcon*. She was designed to compete with the smartest sailers in the Navy, and on her measurement of 350 tons she carried 22 small guns. One of the sinecure offices which her owner held was that of Admiral of the Isle of Wight, and he gallantly took his little vessel into the Battle of Navarino, flying this flag. Owing to failing health he gave up yachting in 1835 and a London firm purchased the yacht as a speculation in the hope that the Indian Government would buy her as a fighting ship for the Burma war. They gave her two engines of 34 horse-power apiece, just enough to carry her over a calm, but by the time she got out there was no further trouble and she was sold to Jardine Matheson and Co., who took out the engines and made her the pride of the opium clipper fleet, just as she had been the pride of the Royal Yacht Squadron. Very heavily rigged, the *Falcon* was a wonder in the matter of speed and was sufficiently powerfully armed to beat off any attack that might be launched at her by Chinese pirates.

The Opium Trade in the China War.

Naturally, the China war of 1841 made the opium trade more difficult, for it redoubled the activities of the pirates and robbed the traders of what little protection they could hope for from the local mandarins. Also the Government was very anxious to buy the best of the clippers for use as despatch vessels and for patrols. The owners, however, decided that the profits were too good to be lost, and after consultation sent the clippers out in company for mutual protection, changing their lascars for white crews and arming them heavily. Three of the best-known ships on the trade, the *Sylph*, the *Lady Hayes* and

the *Powasjee Family*, were thus sailing in company when they were caught by a fleet of semi-naval, semi-piratical war junks. A fierce battle took place which ended in the rout of the Chinese.

The Americans in the Opium Trade.

It was not long before the American owners joined in the opium trade, although their ships ran rather small in size compared with their British competitors. The first one was the *Anglona* of 90 tons, built in 1841, and was soon followed by some famous little vessels like the *Ariel*, *Mazeppa* and *Zephyr*. Generally speaking, they were schooner-rigged and heavily armed, some of them even mounting 68-pounders as pivots.

The Aberdeen Clippers.

The Americans must be given the credit for introducing the clipper ship, but the Scottish builders at Aberdeen were not slow to follow them. The principal of these was Alexander Hall, whose first clipper was the schooner *Scottish Maid* of 150 tons burthen, which was built for speed in order to compete with the paddlers which had the cream of the coasting trade. Speed was a vital necessity for this, and it was a commodity which the smacks which formerly covered the trade did not possess. She was soon followed by other similar vessels, and before very long Aberdeen clippers began to find their way out into the China trade. It was not for some years, however, that they were ship-rigged; schooners and brigs were in the majority in the early days. One of the earliest was the famous *Reindeer* of 1850 under the command of Captain Anthony Enright, one of the finest sailormen who ever commanded a clipper. After that Hall built a large number of well-known ships. In moderate breezes they were faster and more weatherly, but they were so narrow and had such fine lines forward that in heavy weather they could not stand up against the Yankees, and were appallingly wet.

The Tea Trade in the 'Forties.

The old East India Company had done quite well out of the China tea trade, always combining it with silk and general cargoes, and when the trade was thrown open there were many shipowners who saw a fortune in this particular direction. They therefore built ships which specialised in tea and carried nothing else, but they soon found that it was difficult to get full cargoes with the resources open to them. They therefore began to work underground, and many a cargo was really smuggled out of China against the Emperor's orders. This was not a very satisfactory way of doing it, for, while they were victimising the Emperor, the Mandarins usually took very good care to victimise them, so that they commenced to work for the regular opening of more tea ports. They succeeded in this, and with more opportunities the trade grew apace, although it was frequently still necessary to smuggle it in at the other end. When the duties were lightened the trade prospered wonderfully and was soon employing a very much larger fleet. This attracted the attention of the Americans, who in the early 'forties began to send out some wonderful little vessels, the first tea clippers, which

carried cargoes from China to New York and Boston in times which astounded their British competitors.

The "Rainbow."

The *Ann McKim* had made a great name for herself as the first clipper, but she was succeeded in 1843 by a very much finer vessel, the *Rainbow*. She was built as a result of a New York naval architect named John Griffiths delivering a very revolutionary series of lectures on his subject, and with her hollow bow lines she was quite different from anything that had been attempted before. She was also very long and her hull had a very sharp rise of floor, but when on her maiden voyage she went out from New York to Canton in 92 days and came back in 88 there was no doubting that she was a flyer. The *Rainbow* herself foundered after she had been at sea for five years, but she was soon followed by quite a host of other ships, for the clipper idea appealed to the Americans thoroughly and they realised to the full the value of speed in the China tea trade.

Direct American Competition.

The reputation of the American clippers had aroused tremendous interest in England, but this was redoubled when the Navigation Act was repealed and the *Oriental* actually brought China tea to the West India Docks in London, a trade which had been regarded as the freehold of the British ships. She was a magnificent looking vessel and had a fine turn of speed, her reputation for speed on the way out to China having been such that she was chartered for £6 a ton of 40 cubic feet, while the average was £3 10s. for 50 cubic feet. In this way her freight for one voyage amounted to nearly £10,000, and she had only cost about £14,000 to build. She sailed from Hong Kong to London in 97 days and immediately there was a great outcry that the British ships were hopelessly outclassed. It was not long, however, before she was answered.

The "Challenge" and Bully Waterman.

One of the most celebrated clippers under the American flag was the *Challenge*, not only by her own virtue but by the lack of virtue of her commander, the notorious "Bully" Waterman. She was built by William H. Webb of New York and was regarded as one of the finest as well as the most costly ships that were ever turned out. She was put under the command of Robert Waterman, who had made a great name for himself in the *Sea Witch* and, although he was still a very young man, had a reputation second to none in a trade where reputations are not easily obtained. In those days a clipper ship captain was made far more of than the master of a giant liner to-day, and Waterman certainly made some wonderful passages. It was his idea to padlock his sheets and put rackings on his halliards to prevent his officers or men shortening sail, but he was more than a reckless sail-carrier, for his ships were remarkably free from serious accident aloft. But although he was a sanctimonious psalm-singer ashore, he was a fiend incarnate afloat, and the kindest thing is to suggest that he was not in

(*Macpherson Collection*)

THE FIRST CLASS PACKET SHIP "YORKSHIRE" OF NEW YORK ARRIVING AT LIVERPOOL

(From a colour lithograph by T. Picken after a painting by W. McMinn)

(*Macpherson Collection*)

THE CLIPPER SHIP "SOVEREIGN OF THE SEAS," BUILT BY DONALD McKAY, 1852
(FROM A COLOUR LITHOGRAPH PUBLISHED 1852)

The Sovereign of the Seas *was one of the finest of McKay's clippers, and under the command of her builder's brother she made some wonderful passages on the Californian run*

(*Macpherson Collection*)

AMERICAN CLIPPER "FLYING CLOUD," 1783 TONS, BUILT BY DONALD McKAY, 1851
(From an Oil Painting)

(*Macpherson Collection*)

THE "ANGLESEY," BLACKWALL FRIGATE, BUILT 1852
(From a Colour Lithograph by Dutton)

A comparison of these two pictures affords an excellent illustration of the difference in the two great schools of naval architecture in the middle of the nineteenth century.

(*Macpherson Collection*)

THE WHITE STAR CLIPPER "RED JACKET," BUILT 1853
(From a Colour Lithograph by J. R. Isaac, after Samuel Walters)

Rivalry with the famous clipper ships turned out by Donald McKay forced the other builders and owners to design their ships on more extreme clipper lines.

(Macpherson Collection)

THE WHITE STAR CLIPPER "MERMAID," 1321 TONS, BUILT AT ST. JOHN'S, NEW BRUNSWICK, 1853
(From an Oil Painting by J. Scott, 1854)

The picture, which represents the ship off Cape Town on her maiden voyage, is a good illustration of the soft wood ships which were built in the maritime provinces of Canada.

his right mind. None of the clipper captains were gentle with their men, in fact such treatment would have been impossible with the crews that they shipped, but he drove his crew in a manner that seemed incredible. Finally when on the Californian run he shipped an old Italian seaman who got gangrene in his feet and who was obviously absolutely helpless. Waterman, however, declared him to be a malingerer and deliberately and mercilessly clubbed him to death. That was rather more than even Western morals could stand, with the result that he was brought to trial for murder, but he succeeded in bribing the jury and was acquitted. It was the end of his sea experience, however, and so he turned to missionary work ashore. One day he boarded a ship in San Francisco Bay and attempted to hold a prayer-meeting, but unfortunately the crew included some of the men who had sailed under him, and when they had him overboard and were trying to hold him under with a boat-hook it was only with the greatest difficulty that the police rescued him. After that he confined his attention to the shore, but he had already found imitators in his practice of carrying sail, although there were few enough who contrived to do it without losing any number of spars and frequently bringing their ships to disaster.

The Clipper Ship Captains.

There were two very distinct types of clipper ship captain during the halcyon days, their one feature in common being that they were both magnificent seamen. The one was the sailor who had pushed his way up by pure seamanship and like the " tarry-breeks " officers in the old Navy some of these had the plums of the profession. The great majority, however, were cultured, educated men and although perhaps to modern eyes they appear to have been a little pompous in the ceremony which they maintained—a ceremony which was far more than the routine of a modern 50,000-ton liner—they produced excellent results and as a general rule they were very much loved as well as respected. Some masters used their hands themselves, but the majority were content to leave such practices to their mates as soon as they got command, the reputation that they were handy with their fists if necessity arose being sufficient for the men in the forecastle, who frankly would much rather sail under a " hard case " skipper than one who was gentle with them. Even " Bully " Waterman, in spite of his terrible reputation, contrived to ship one or two men voyage after voyage until he committed murder on the high seas.

The Finest American Clippers.

The Americans soon made a great name for themselves in the China trade with their ships. A book might be written on each of the famous ships of that time—the *Surprise*, the *Staghound*, the *N. B. Palmer*, the *Sea Serpent*, the *Flying Cloud*, and finally the *Challenge*. It was in this last-named, commanded by " Bully " Waterman, that the case of murder just referred to occurred. She is also famous for her race with Richard Green's *Challenger* which occurred in 1852. They started in

the Anger Straits with the whole world following them, and it resulted in the *Challenger*, although a much smaller vessel, beating the big American by two days to the Thames. The Green family made a fortune out of their bets on this race. On the length of her voyage from China, however, the American made the better showing. This started the tea races which afterwards took place every year, while at the same time there were a large number of individual matches between pairs of cracks. In the early 'fifties, however, the Americans began to drop out of the tea trade considerably, for they found that they were doing very much better taking passengers out to California where the goldfields attracted fortune seekers for years. After they had run their passengers out to San Francisco they often went across the Pacific for tea, but very seldom carried it to the London market.

Desertions in the Californian Trade.

The lure of gold in California attracted everybody, seamen as well as landsmen, and it was by no means unusual for the whole crew of a ship to desert as soon as she dropped her anchor in San Francisco Bay and make for the gold fields. Very often the owners' agents had preceded them, so that there was nobody to look after their interests and many a fine ship left her bones in the Bay for lack of seamen to bring her away. Sometimes enterprising hotel keepers took possession of the ship as she lay at her anchors and fitted her out for the accommodation of the hundreds of prospectors who were daily pouring into the town without the least hope of finding shelter. Sometimes she was run aground for this purpose and one famous American clipper, the *Nipsic*, actually formed the foundations of a solidly built hotel which was well up town as the city gradually worked forward along the waterfront. Many years afterwards champagne was found in her lazarette during building operations and pronounced to be excellent. Deserted ships made useful gaols and schools, and the fact that this did not ruin the owners is a good indication of the fares that they charged the miners.

The British Clippers.

With the decline of American competition the British owners began to compete among themselves so keenly that there was no risk of the design deteriorating. Steele on the Clyde, Hall at Aberdeen, and Pile at Sunderland are perhaps the best known of the clipper ship builders in Great Britain, but there were several others who turned out some remarkably successful vessels and most of the better-class British builders contrived to get a magnificent reputation for their workmanship. A clipper had to be well built if she was going to last any time, for the gruelling that she got being driven at high speed through any sea was terrible and was really most unfair to any ship. That is why their lives on the racing trades were comparatively short, but at the end of them they were generally fit to be used for a variety of purposes until finally they came down to carrying timber or coolies.

The Coolie Trade.

Many of the famous clipper ships of this time drifted into slaving, or what was scarcely better, although regarded as more respectable, the

coolie trade. Many of them still claimed the protection of the British or American flags, but they were mostly Spanish or Portuguese owned and manned. One such ship was the *Bald Eagle*, one of the best-known of the American clippers, which dropped down into the lowest stage of the coolie trade, taking native workmen to the Chincha Islands off the coast of South America, whence none ever returned. The Chinamen were kept below, but on this voyage they appear to have been planning mutiny and at a given signal they suddenly tore up the bunks and bulkheads to make weapons and rushed the deck. The Portuguese crew were just in time to get gratings over the hatches, when the captain and his officers brought out their revolvers and started firing into the surging mass of coolies beneath them. It seems that the flame from one of the revolvers set light to a Chinaman's clothes, whereupon they all dashed at the burning material and, keeping it alight in spite of the efforts of the officers, succeeded in setting the ship on fire. This was done either in a suicidal frenzy or else to force the Portuguese to release them. After making efforts to put out the fire by pumping water through the deck, the Portuguese crew abandoned the ship, leaving the terrified Chinamen battened down to be roasted alive in the inferno that they had themselves created. The crew attempted to reach Manilla, and after terrible hardships the survivors were rescued by H.M.S. *Rattlesnake*.

The "Nightingale."

One of the most noteworthy of the American clippers was the *Nightingale*, which was built in 1851 for the express purpose of running as a pleasure yacht. She might easily have been a success in this business for she was beautifully fitted, but unfortunately her owner got into financial difficulties and she was unable to make her maiden passage to London for the International Exhibition of 1851 as intended. She was therefore completed for ordinary service and soon proved herself an extraordinarily fast boat. Her new owners had such confidence in her that they backed her for £10,000 against any ship afloat for a race to China and back, an offer that was left unaccepted. In 1860 she fell on evil days and went into the slave trade to the West Indies under the command of the Prince of Slavers, Bowen. She was a special mark for the British and American men-of-war who were engaged in suppressing the trade, but her master needed a deal of capturing. Finally he was captured by the U.S.S. *Saratoga* and the ship was bought into the U.S. Navy for blockade service, although he and his equally scoundrelly supercargo contrived to get away. After the Civil War she changed hands several times and undertook several duties, finally being abandoned in 1893 after she had been nearly twenty years under the Norwegian flag.

Double Topsails.

In the 'fifties it became necessary to consider economy in crews, for the competition of the steamer was becoming more and more acute and the owners of the big clipper ships could no longer disregard expenses. One of the first measures to economise in sail was the intro-

duction of double topsails, some of the early ones being weird and wonderful gadgets. In the old days the topsail had been the most difficult sail to reef or furl and always required a large number of men. It was therefore cut into two horizontally, each sail being very much more easily handled with little or no loss of efficiency. It was some years before a further desire for economy began to banish the ship rig in favour of the barque rig, for it was found that the absence of square sails on the aftermost mast was of comparatively little importance to speed and some barques made remarkably fine passages. The square sails were in fact introduced principally to permit the mizzen topsail to be backed in order that a man-of-war might keep station with the fleet or a fast merchantman remain in company with her convoy.

The "Sir Lancelot."

All the old clippers had a great personality, but perhaps none more than the *Sir Lancelot* which was built by Steele in 1865. She was a composite ship and was practically a sister to the *Ariel* so that there really was always a great rivalry between the two. Her maiden voyage was a positive disaster, her captain having no idea of the ways of a clipper and under him her performance was very disappointing. When he had been replaced, however, she proved herself one of the fastest of the clippers, although her iron masts were apt to give a good deal of trouble. She had a very long life for a racing clipper and finally foundered in 1895 after she had been sold to Persian owners who loaded her with salt for Calcutta.

The "Ariel."

Built by Steele in 1865, the *Ariel* was one of the most successful of the tea clippers. She was composite built with a tonnage of just over a thousand. Her great virtue was that she only required a breath of air to move her, but at the same time she could stand a good deal of wind when properly handled and 340 miles were logged in a single day while running her easting down. Her famous race with the *Taeping* deserves a paragraph to itself, but it may be mentioned that in 1867 she ran from London to Hong Kong, pilot to pilot, in under 80 days and was always a magnificent performer. Finally she disappeared somewhere in the Indian Ocean in 1872.

The Great Tea Race of 1866.

Probably the finest of all the tea races home with the new season's tea was that of 1866, when the *Ariel, Taeping* and *Serica* practically tied. The *Ariel* was the first to leave the Pagoda Anchorage, but she lost time owing to her tugs and before she got clear the *Taeping* and *Serica* were up to her with the *Fiery Cross* rather farther ahead. The *Taitsing* was close on their heels. There was a big fleet after them but these were the only ones that it is necessary to mention. The ships had the usual tricky winds and tides running down to Anger and *Ariel* and *Taeping* contrived to make up the lead which had been gained by the *Fiery Cross*. It was pure luck, however, and one after the other the

(*Macpherson Collection*)

THE AMERICAN CLIPPER SHIP "ANTARCTIC,"
BUILT BY DONALD McKAY
(From an oil painting by D. McFarlane, 1853)

(*Macpherson Collection*)

THE CLIPPER SHIP "LIGHTNING," BUILT 1854
(From a Lithograph in Colours by J. R. Isaac)

Built by the famous Donald McKay for James Baines's Australian service, the Lightning *still holds the record for a sailing ship by sailing 436 miles in a day.*

(*Macpherson Collection*)

THE "PEARL," OPIUM CLIPPER, BUILT AT CALCUTTA, 1831
(From an Oil Painting, Contemporary)

(*Macpherson Collection*)

THE SNOW "BOOMERANG," BUILT AT DUNDEE, 1854
(From an Oil Painting by S. Walters, 1856)

Schooners, brigantines, brigs and snows were very often built for speed for certain trades.

(*Macpherson Collection*)

THE BLACK BALL CLIPPER "JAMES BAINES," BUILT BY DONALD McKAY IN 1854
(From a Colour Lithograph by T. Picken, after Samuel Walters)

The James Baines *was a worthy consort of the* Lightning, *and, like that ship, hailed from the American yard of the wizard McKay.*

(Macpherson Collection)

THE CLIPPER SHIP "WHITE STAR," BUILT 1854
(From a Lithograph in Colours by J. R. Isaac)

The White Star *was one of the answers which the White Star Line made to the clippers which Donald McKay built for James Baines, and was a remarkably successful vessel on the Australian trade.*

ships forged ahead or dropped astern with every inch of canvas set that could possibly be contrived. Once clear, however, they made better progress, the *Fiery Cross* taking ten days from Anger to Mauritius, the *Ariel* and *Taeping* eleven, and the *Serica* twelve. They then began to lose sight of one another until they got into the English Channel when the *Ariel* sighted the *Taeping* while they were both racing up under as much canvas as they could possibly carry. By the time they took their pilots aboard at Dungeness it was only a matter of who should get the best tug in the Downs. Here fortune favoured the *Taeping* and the *Ariel* lost a good deal of time on the way to Gravesend, where she took a second tug and commenced to gain again. Finally the *Taeping* entered the London Docks twenty minutes ahead of the *Ariel* at the East India Docks and it was agreed that they should share the credit. They did not know then that the *Serica* had been creeping up on the French side of the Channel and entered the West India Dock only a short time after them.

Donald McKay.

The outstanding figure in the clipper ship era is undoubtedly Donald McKay, a Nova Scotian of Scotch descent who went to New York as a youngster of sixteen in 1826, and apprenticed himself to a shipwright there. He soon began to make his mark as a first-class workman, with the result that he had a yard of his own at Newburyport at an age when most of his contemporaries were content to be shipwrights. Even so, he did not get well known until 1840, when he built the *Delia Walker* and the *Courier*. Both of these vessels had wonderful reputations for speed, and by that time speed was the one thing that got a shipbuilder known—it seems to have mattered comparatively little if his ships foundered. McKay's did not founder: they were built as well as any afloat, and with his increasing reputation came rapidly increasing orders. He built a number of packet ships, his most famous being for Enoch Train, whose reputation as a shipowner was founded almost entirely on McKay's building. The first packet ship that he built was the *Joshua Bates*. It was by Train's recommendation and help that he moved down to East Boston, where he had a far better chance of making his gifts generally known.

James Baines.

The first man to appreciate Donald McKay's genius in England, and to import American-built ships from his yard was James Baines. Starting in a very small way he had contrived to borrow enough money to purchase a very unpromising-looking Canadian ship at a low price. He did well out of her in the Australian trade and soon found no difficulty in getting backers who would finance his schemes. He believed in the Australian trade all the time and before long he had a hundred ships running on it. These ships were among the most successful on the run but he was not a particularly good business man. He ran soft-wood ships for all they were worth and did not allow sufficiently for depreciation; he got the idea that auxiliaries would pay well on the Australian trade and lost a lot of money by his belief, and finally he

lost most of his capital by the failure of Barnard's Bank. But in ten years he had made a huge difference to British shipping. He lived another thirty years in straitened circumstances or positive poverty, but he was never able to get on his feet again and he died in obscurity. Popular, shrewd and as honest as the day, the meteoric career of James Baines is one of the tragedies of the halcyon days of sail.

The " Marco Polo."

James Baines's first ship on the Australian trade was the *Marco Polo* which had been built in New Brunswick and which was apparently one of the ugliest ships ever put afloat. Baines had faith in what he could do with her, however, and fitted her for emigrants in a very much more elaborate manner than had been usual up to that time. He put her under the command of James Nicol Forbes—" Bully " Forbes—and he certainly made her travel. Liverpool shipowners of experience shook their heads and thought that young Baines was bound to ruin himself, but she did so well on her first voyage that he was able to buy other ships and was soon established at the head of his particular tree. While she made James Baines's reputation she also made that of Captain Forbes, with the result that he was the crack man on the Australian service until he wrecked his career by his conduct on the occasion of the loss of the *Schomberg* which was meant to break the Australian record but which came to grief on her maiden voyage.

The Australian Records.

Nearly all the Australian records were made on the outward passage, when the clippers not only carried big crews but frequently doubled them by men who were working their passage with the idea of making their fortunes in the goldfields. Speed was not so important coming home so that they could manage with a very much smaller crew, and a very mixed crew it generally was. As soon as the anchor was down in Australian waters the men began to desert and the ship would generally take in her cargo manned entirely by her afterguard and perhaps one or two apprentices. Before her time came to sail there were generally a good many disillusioned gold miners who had gone out to seek their fortune and who had found only hardship and disappointment. Such men were generally very glad of a chance of getting home and although they stood out for Australian rates of pay it was very unusual for a ship to be left in Australian waters for lack of men, as was so frequently the case in California.

The " Lightning."

James Baines had four wonderful clippers built for him by Donald McKay of Boston, of which perhaps the most famous is the 2,000-ton *Lightning*. She was a clipper in every sense of the word and under the command of " Bully " Forbes she made a wonderful maiden voyage to Australia. She had already advertised herself by her passage across the Atlantic to be delivered, a passage which included the day's run of 436 miles which stands as a world's record for a sailing ship. Even more famous than " Bully " Forbes was Captain Enright who made her

one of the most popular passenger carriers on the Australian run. She also did well trooping to the Indian Mutiny and it was not until 1866 that she changed hands, only to be burned in Australian waters while loading wool for home.

The " White Star."

While James Baines went to Donald McKay for his Australian clippers the rival firm of Pilkington and Wilson who maintained the White Star Line went to New Brunswick and obtained the *White Star* in 1854. She was a big ship of over 2,300 tons and she was a magnificent vessel. She was more remarkable for repeated passages that were not quite records than for any epoch-making run and in 1866 she was sold with the rest of the company's sailing vessels. After that she changed hands several times and was finally wrecked on the Tuskar owing to her master having mistaken the lighthouse for a star.

The Aberdeen Line.

The Aberdeen Line which owned some of the most famous of the clipper ships on the Australian run commenced operations in November, 1825, when George Thompson of Aberdeen set himself up as a ship-broker and agent. He was then thirty-one years of age, but he had the courage of his convictions and it was not many weeks before he collected a syndicate round him and with three ships the *Amity*, *Mansfield*, and *Sir William Wallace* went into the Quebec trade, taking out emigrants and bringing back timber. Soon afterwards the brig *Childe Harold* was placed on service and soon proved herself a success, but it was not until the late 'forties that the Aberdeen Line went into the Australian service with a regular schedule, a convenience that was very much appreciated by shippers and which made the name of the company. It was no use advertising such a thing unless the sailing ships could maintain it, however, and Thompson set himself to get the best on the market. He still retained some interest in the China tea trade but Australia was the gold mine on which he had set his eyes. The Aberdeen Line's sailing ships, with their typical green hulls, held the field until the 'eighties and even then did not disappear entirely for some years. The company's steamers still maintain the reputation then built up.

The " Thermopylae."

An Aberdeen clipper which certainly deserves full mention as being the great rival to the *Cutty Sark* for the title of the fastest sailing ship ever built is the *Thermopylae*, which was really designed for the Australian trade but which spent a good deal of her time on the China run. She was built in 1868 to the designs of Bernard Weymouth, a well-known naval architect, who was also known for his work as Secretary of Lloyd's Register. Her famous commander was Captain Kemball and her maiden voyage was 63 days. Her sail plan was very much more square than had been the fashion before her day and this proved entirely successful. This passage is the one that is so often recorded as " Sixty days to Melbourne," but this time was pilot to pilot,

her actual passage being 63. She did magnificent service in the Australian trade and was finally sold to the Portuguese Navy as a training ship, ending her days as a target for torpedo experiments.

The Famous "Cutty Sark."

Perhaps the most famous of all the clippers was the *Cutty Sark* which was built for old John Willis in 1869 at Dumbarton. She really marked the last of the clippers' opportunities, although she was not quite the last of the clippers, for in the same year the Suez Canal was opened and gave the steamer an advantage which nothing could equalise. The *Cutty Sark* had a gross tonnage of only 921 and in spite of bad weather on her maiden voyage she soon proved herself remarkably fast. She was intended to rival the *Thermopylae* but at the start of the only actual race that could be arranged between them, from Shanghai home, the weather prevented any smart sailing, and when finally the wind did come the *Cutty Sark* had the bad luck to lose her rudder. Captain Moodie immediately constructed a most ingenious jury rudder from a spare spar 70 feet long, and when it was carried away he rebuilt it. In spite of the time wasted constructing these rudders, and the necessity of nursing her all the way home she was only seven days astern of the *Thermopylae*, so that although in black and white the Aberdeen ship has every claim to the title of the fastest of the clippers it is morally certain that the *Cutty Sark* would have beaten her hands down had she not met with such exceptionally bad luck. She was essentially a ship which needed the most careful handling, for when Captain Moodie left her in 1872 she did nothing until Captain Woodget took her over in 1885. She then proved that she had all her old speed, but in 1897 she was sold to the Portuguese and it was only a short time ago that she returned to British waters owing to the practical patriotism of Captain Wilfred Dowman and his enthusiastic wife. She has been completely rerigged in her original style and now lies at Falmouth, a thing of exquisite beauty and an object lesson of all that was meant by the old tall ships.

The New Zealand Clippers.

Generally speaking the fast ships on the New Zealand trade were smaller than those on the Australian, for the dominion never went in for immigration en masse and its settlement was very much more slow and steady than Australia. For this reason the trade demanded a smart little vessel, a barque as often as a ship, and although they did not make the sensational passages of the big Australians they had some excellent runs to their credit. These ships brought home wool and later dairy produce and were noted for their cleanliness and smartness.

Smith's City Clippers.

While the clipper ship was edging her way into the Australian trade among the big frigate-built Money Wigram and Green ships, a very similar thing was happening on the Indian trade. Clippers were not usual in these waters but George Smiths of Glasgow, a company which is still in existence as a part of the Ellerman combine, brought out a

(*Macpherson Collection*)

THE CLIPPER SHIP "IDA ZIEGLER," BUILT 1854, WRECKED IN HAWKE'S BAY, 1869
(From a colour lithograph by and after T. G. Dutton, 1863)

(*Macpherson Collection*)

THE " CITY OF MADRAS," CITY LINE CLIPPER, BUILT 1859; SUNK BY COLLISION OFF BARDSEY ISLAND, 1887
(From an Oil Painting, Contemporary)

Although they are not as well known as the China or Australian clippers, the little vessels which were built for Smith's City Line to India had a wonderful reputation in their day.

(*Macpherson Collection*)

THE CLIPPER SHIP "ARIEL," BUILT AT GREENOCK, 1865
(From an Oil Painting, Contemporary)

The Ariel is best remembered by her famous race home from China with the Taeping, but she also has the reputation of being one of the most beautiful ships ever put into the water.

(*Macpherson Collection*)

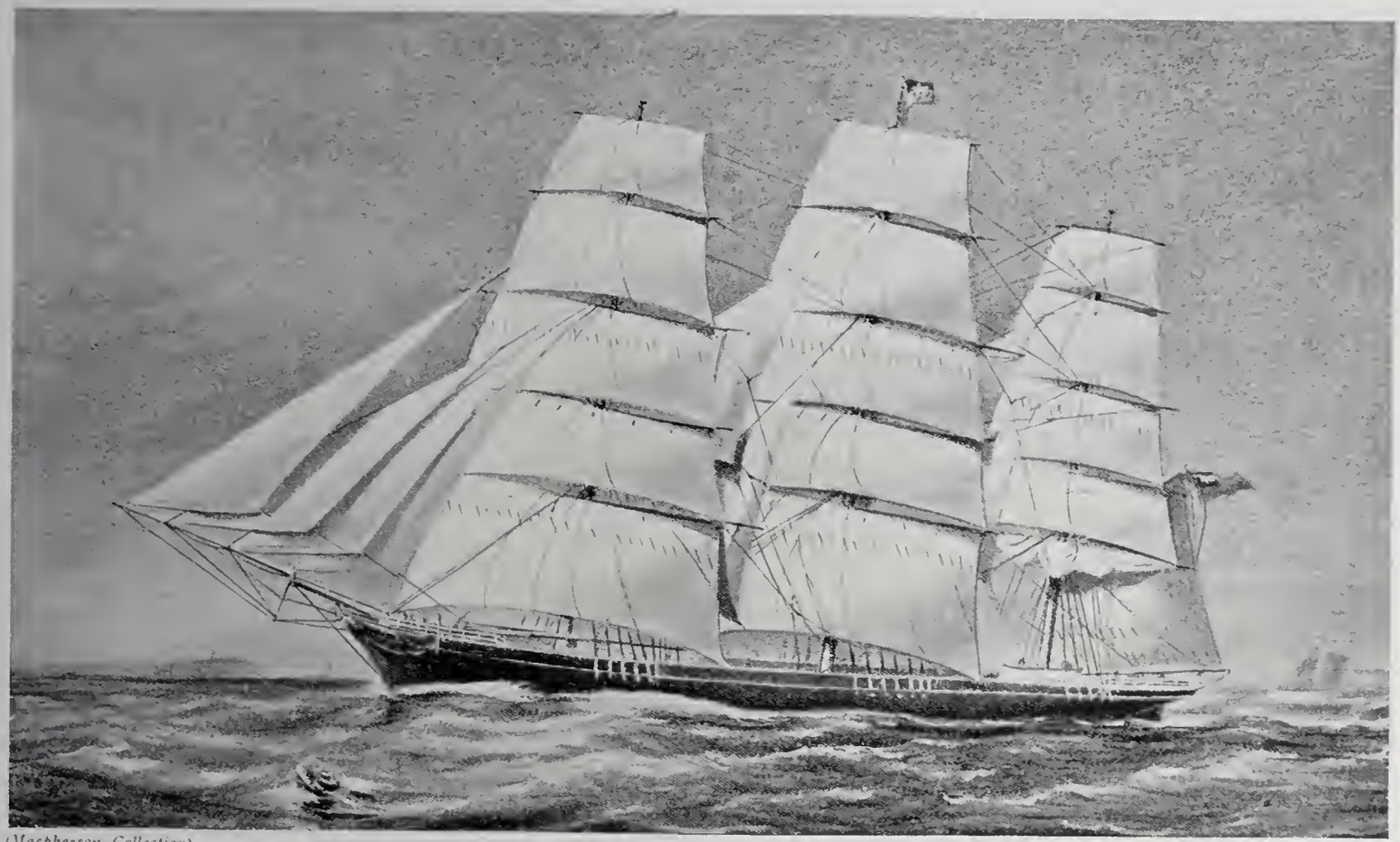
THE FAMOUS TEA CLIPPER "SIR LANCELOT," BUILT 1865
(From a Colour Lithograph by and after T. G. Dutton, 1867)

Although she is one of the best known of the clipper ships which were built for the tea trade, authentic prints of the Sir Lancelot *are extraordinarily difficult to obtain.*

(*Macpherson Collection*)

THE TEA CLIPPER "LAHLOO," BUILT BY STEELE, GREENOCK, 1867
(From a Proof Lithograph in colours by and after T. G. Dutton, published 1867)

Built at a time when there was no dearth of prime seamen and when economy was rather a secondary consideration, the Lahloo *was a typical tea clipper of her day.*



(*Macpherson Collection*)

THE CLIPPER SHIP "THERMOPYLÆ," BUILT BY HOOD AT ABERDEEN, 1868
(From a Lithograph after a drawing by H. J. Cornish)

Designed as a competitor to the famous Cutty Sark, *the* Thermopylæ *is regarded by many as the fastest sailing ship in the world, and finished her long life as a Portuguese naval training ship.*

(*Macpherson Collection*)

THE TEA CLIPPER "NORMAN COURT," BUILT 1869
(From a Lithograph in Colours by T. G. Dutton)

Although she was built after the halcyon days of the sailing ships on the China trade, the Norman Court *made some magnificent runs, and held the record in* 1872.

(*Macpherson Collection*)

THE CLIPPER "HALLOWE'EN," 920 TONS, LAUNCHED 1872, WRECKED ON THE DEVONSHIRE COAST IN 1887
(From an Oil Painting, Contemporary)

Built when economy was being forced on the clipper ship owners, the differences in rig of the Hallowe'en *as compared with the earlier vessels are striking and interesting.*

(*Macpherson Collection*)

"THE TWEED," FORMERLY A PADDLE FRIGATE OF THE EAST INDIA CO., AFTERWARDS RUN AS A SAILING CLIPPER BY JOHN WILLIS
(From an Oil Painting, Contemporary)

Before John Willis bought her and converted her into a most successful sailing ship, The Tweed *had already earned for herself a high reputation as a paddle frigate in the old Indian Navy.*

number of very speedy little clipper ships, all named after cities. Taking full advantage of the weather these little vessels made some remarkably fast and regular passages, although they are not as well remembered as the big ships into whose trade they contrived to take very considerable bites.

The End of the Clippers.

The end of the Golden Age of Sail was tragically—although perhaps mercifully—swift. Clipper ships could only exist with clipper freights and the almost simultaneous opening of the Suez Canal, improved coaling facilities and greatly increased economy of steamers brought freights down with a run. Sailing ships existed and prospered for many years afterwards—there was a remarkable revival in the 'nineties—but then they built the ships to carry cargo and not to clip minutes off one another's records. While it lasted, however, it was the most interesting period in the history of shipping, and the glory and romance of the clipper ships will never fade as long as a love of the sea exists in mankind.

CHAPTER V—THE ATLANTIC FERRY

The Importance of Speed on the Atlantic.

It was really the all-important factor of speed on the Atlantic that gave steam its chance, for the transatlantic run was the first regular packet service on which fast passages were attempted in peace time. The doings of the early sailing packets have already been described, and their owners having found that speed would pay it was only one short step to ensuring speed and regularity by introducing steam. At first, however, there were many obstacles to overcome, not the least being prejudice and the firm belief in the minds of many people that it was quite impossible to cross the Atlantic with steam as a commercial proposition. It was not only the ignorant layman who considered it impossible; the scientist who had studied the question thoroughly was convinced that the coal bills would kill all chance of financial return.

The "Savannah."

The first steamer to cross the Atlantic was the *Savannah*, although whether hers can be described as a steamship voyage is a matter of considerable argument. She was originally intended as a sailing packet to run between New York and Havre and was built at the former port in 1818. Captain Moses Rogers, who had already obtained very considerable experience in the handling of steamers on the American rivers, became interested in her and persuaded a Savannah firm to buy her and convert her into a steamer. It must be remembered, however, that her steam was only intended to be an auxiliary and consisted of a single cylinder engine, driving paddles which were specially constructed to unship and be carried on deck. Her first passage was from New York to Savannah where it was advertised that she would sail for Liverpool. She actually sailed on the 22nd of May and arrived off Cork on the 17th of June. As by that time she had used up all her coal, although

she had only been under steam for eighty hours, she finished the voyage as a sailing ship. After coaling at Liverpool she went to St. Petersburg by way of Stockholm. On her return voyage she did not use her engines until she was inside the Savannah river. Therefore the claim that she crossed the Atlantic under steam was rather far fetched, but she deserves notice as a pioneer. In 1820 she was sold to owners who immediately removed her engines and she ran along the American coast until she was wrecked on the Long Island coast.

The "Curaçao."

After the *Savannah* came the *Curaçao*, although she is generally omitted by historians. She was built at Dover in 1826 and was then named the *Calpe*, a little steamer of 438 tons register whose paddles were driven by independent engines. Almost immediately after she was completed she was sold to the Dutch Government who sent her across the Atlantic from Rotterdam to the Dutch West Indies in April, 1827, when she took a month to do the passage. After that she did a passage a year until she was required as a man-of-war during the Belgian troubles of 1830. When these troubles were over she was not returned to her commercial service but remained in the Dutch Navy until 1848.

The "Royal William."

Hard on the heels of the *Curaçao* came the *Royal William*, a ship which is generally given the credit of making the first steamship passage. She was built at Quebec in 1831 with the intention of running between Quebec and Halifax on a mail service. Samuel Cunard was one of her shareholders and it was undoubtedly his experience in her that prompted him to start his great venture. She had a burthen of 363 and there is little doubt that she would have succeeded excellently on her original service had it not been that cholera broke out just about the time that she was completed and ruined the trade of the Maritime Provinces. She had cost £160,000 to build and was sold for her debts for £5,000, her purchaser employing her as a tug. She was not a success, but he thought he could get his price for her in Europe and accordingly sent her across the Atlantic in 1833. Thus it is very largely due to her misfortunes that she has her place in the history books. The extravagance of her boilers did not leave very much room for cargo and she had to take 330 tons of coal to bring her across in 25 days. She was sold in England for £10,000 and then chartered to the Portuguese Government as a transport. In 1834 the Spanish Navy bought her as a warship and she ran as the *Isabel Segunda* until she was condemned in 1847.

The "Sirius."

The next steamer to cross the Atlantic was the *Sirius*, which was built at Leith in 1837 for service across the Irish Sea. For this run she was quite a big ship, having a gross tonnage of 703, and incidentally it may be remarked that she was one of the first ships to be fitted with a condenser instead of using salt water in her boilers. She was rather too big and deep in the water for the trade for which she was designed

and accordingly in 1838 she was chartered to the British and American Steam Navigation Company until the *British Queen*, which they had under construction, should be ready. She sailed in March under the command of a naval captain, starting her voyage from London and calling at Cork to fill up her bunkers. She had about 100 passengers on board and she was so deeply laden that no modern Board of Trade inspector would have allowed her to sail. Apparently she had not heard that the *Great Western* was getting ready and although she made quite fair time across she was practically overtaken and arrived in New York only just ahead of her rival. However, she was the first and received a wonderful ovation.

The "Great Western."

While the *Sirius* was preparing for her voyage the *Great Western*, a very much bigger and finer ship, was being completed at Bristol, a vessel with dimensions 236 feet x 58 feet 4 inches over the paddles, and a draught of 16 feet. This gave her a tonnage of 1,440 and she had the reputation of being one of the best built ships of her day. Her boilers consumed eight pounds of coal per indicated horse-power per hour and on her best day's steaming she averaged 8.2 knots. Her time across was fifteen days and she arrived at New York only four hours after the *Sirius*. Altogether she did ninety voyages on the Atlantic Ferry before she was sold to the Royal Mail Steam Packet Company for the West Indian and South American service, and was finally broken up in 1856.

The British and American Steam Navigation Company.

A very great part of the credit for introducing regular steam communication across the Atlantic must go to Dr. Junius Smith, who, having to cross the Atlantic on business, was disgusted at the time taken by even the best of the packet ships of that day. He printed numerous pamphlets to show that the idea of a steamer service was quite practicable, and was regarded as a lunatic for his trouble. He suggested a company with a capital of £100,000 to build steamers of 1,000 tons apiece, but he soon realised that this was not sufficient, and finally he contrived to get together the basis of the British and American Steam Navigation Company, with such men as Charles Enderby, James Beale and Colonel Aspinwall on the Board. The Chairman was Mr. Henry Bainbridge, the Secretary was Macgregor Laird, who was afterwards to make a big name for himself in the shipping world, and the capital of the company was to be £1,000,000, in ten thousand shares of £100 apiece. The prospectus was distributed all over the country, and it is rather interesting to note that the Duke of Wellington (who, by the way, got his popular name of the "Iron Duke" from an iron steamer which was launched at a time when he was very much in the public eye) replied that he could give no countenance to any scheme which had for its object a change in the established system of the country. In spite of this good progress was made, and having got the capital, Mr. Robert Napier of Glasgow agreed to build the *British*

Queen of 2,400 tons. It was while she was completing that the *Sirius* was sent across the Atlantic. The *British Queen*, which soon followed her and which ran for some time, carried 500 passengers, coal sufficient for twenty-five days' steaming, and 80 tons of cargo.

The "Liverpool" and "President."

In October, 1838, a steamer named the *Liverpool* was built at that port and sent across to New York by Sir John Tobin, a well-known Merseyside character at that time. She did the western passage in 16½ days, but after a few runs she was bought by the P. & O. Line and transferred to the Peninsular service. Soon afterwards, in 1839, the British and American Steam Navigation Company had the famous *President* built for them by Messrs. Curling and Young. When she was launched on December 7th, 1839, she was regarded as the finest ship in the world and the greatest hopes were entertained of her success. Unfortunately, in April, 1841, at a period when very heavy weather was experienced in the Atlantic and when icebergs were particularly troublesome, she went missing and for a long time the greatest excitement ruled as to what had happened to her. It was believed that her engines might have broken down and that she would sail to the West Indies or some place difficult of access, but month after month went by until finally all hope had to be abandoned. It was generally supposed that she had struck an iceberg, but no wreckage was ever found and it is impossible to say with any certainty what happened to her.

The Commencement of the Cunard Line.

The real commencement of the Cunard Line may be said to date from April, 1838, when Judge Haliburton, generally known by his pen-name of "Sam Slick," and the Hon. Joseph Howe, two prominent citizens of Halifax, started a voyage to London in H.M. gun brig *Tyrian* which was carrying the Nova Scotian mails. Soon after they had left port they were overtaken by the steamship *Sirius*, who took over the mails and also took on Mr. Howe as a passenger. She had the *Tyrian* hull-down astern in no time, which so impressed Mr. Howe that when Judge Haliburton arrived they conferred together and decided that the best move for the future prosperity of Halifax was the establishment of a steam service. The Great Western Steamship Company was already in operation in Bristol, so that the two enthusiastic Colonials went down there to interview the directors. The arrangements were not yet completed when Mr. Samuel Cunard, another Halifax citizen, heard of their enthusiasm and immediately went down to Bristol to put his schemes before them, schemes which seemed to them so eminently practical and far-seeing that they decided at once to support them.

Samuel Cunard.

Many people have wondered at Samuel Cunard's success in establishing Atlantic steam navigation when other people had failed, but there were two great factors which contributed to it. To begin with he thought in services when other people thought in ships, and secondly he possessed a very sound knowledge of shipping. Samuel Cunard was

(*Macpherson Collection*)

THE TEA CLIPPER "SPINDRIFT," BUILT AT GLASGOW, 1867, WRECKED ON DUNGENESS, 1869
(FROM A WATER-COLOUR BY JOSIAH TAYLOR, 1867)

born at Halifax, Nova Scotia, in 1788, the son of Quaker parents whose stock had emigrated from Wales to Philadelphia but who had decided to move to Halifax when the United States declared their independence. He served his apprenticeship in a merchant's office and then went into a shipowning firm in Boston. In 1815 he undertook the carriage of the British mails from Boston and Newfoundland to Bermuda and he was one of the first shareholders of the Canadian *Royal William*. In 1830 he planned a steamship service between Liverpool, Halifax and Boston, but he could not get the necessary support at that time and so for a while returned to his business as agent for the East India Company. As time went on he became more and more convinced that an Atlantic service would pay and in 1838 he crossed to England and obtained the help of the Secretary of the East India Company. This gentleman, Mr. Melvill, introduced him to Robert Napier of Glasgow, the famous engineer, who in turn passed him on to two of the foremost British steamship owners, George Burns of Glasgow and David McIver of Liverpool. At first the latter was very doubtful of Cunard's suggestion, but Napier threw his influence into the scale and finally both gentlemen decided to support the keen young Nova Scotian. The result was the foundation of the Cunard Line.

The First Mail Contract.

Convinced by the arguments that were put up by established shipowners and by the Nova Scotians who were visiting London, the Admiralty finally decided to advertise for tenders for a steam mail service to the United States. The Great Western Steamship Company had their tonnage built and regarded it as quite certain that they would obtain the contract. Much to their chagrin the Cunard tender, which had gone very much further into all the problems of the subject than theirs, was immediately accepted by the Government. Originally the idea was to build three steamers, sister ships, and maintain a fortnightly service in the summer and a monthly in the winter, twenty round voyages a year. These voyages were to be to Boston by way of Halifax and they were to be paid £55,000 per annum, but when all sides went further into the question they decided that it would be far safer to build four ships and accordingly the subsidy was increased to £3,295 sterling per round voyage which worked out at about £81,000 per annum.

The First Cunarders.

The great secret of Cunard's success was that he built in classes, so that he was always able to reckon on his service and passengers could always reckon on the treatment that they would receive. The first four ships were built by various firms on Clydeside, the engines all being by Napier. They were the *Acadia*, *Britannia*, *Caledonia*, and *Columbia*, vessels with dimensions 207 x 34 x 24.4 feet depth of hold, the gross tonnage being 1,155. They were paddle steamers with side lever engines, having an indicated horse-power of 740 and burning nearly five pounds of coal per indicated horse-power per hour. Their average speed was in the neighbourhood of eight and a half knots. Before they

commenced running, however, a small steamer the *Unicorn* was sent to run a mail service between Pictou and Quebec and was actually the first Cunarder to cross the Atlantic.

The "Britannia's" Maiden Voyage.

Nobody knew better how to interest men than Samuel Cunard, so that he postponed the maiden voyage of the *Britannia* until July 4th, 1840, when she ran to Boston in 14 days 8 hours, with a 12-hour stop at Halifax to land her mails and to re-bunker. When she arrived at the New England port Boston society literally went mad over her and Cunard had to face something like 2,000 invitations to dinner. The *Britannia* was followed by her three sisters in quick succession and the service was established. The Great Western Steamship Company was indignant at being shouldered out of its contract and finally tried to get a Parliamentary enquiry into the circumstances, but this enquiry stayed to bless and reported on the Cunard service in such glowing terms that its popularity was greatly increased. Not only were their ships exceedingly comfortable by the standards of the times—although Charles Dickens who crossed in the *Britannia* does not give us any complimentary description of her accommodation—but they were navigated with the very greatest care and were—as they have been ever since—remarkably free from accident. The *Columbia* was wrecked on Cape Sable but there was no loss of life and the mails were landed in safety, while the company took the opportunity of replacing her by two larger and faster ships.

Improving the Cunard Service.

Having established this service, the Cunard Line soon found themselves forced to improve it to cope with the demand that they had created. In 1848 the Government arranged a new contract with them, by which they ran a weekly service, one steamer going to Halifax and Boston and the next to New York direct. At a later period the Boston service was dropped altogether for some years. In order to cover this trade the subsidy was increased to £156,000 sterling per annum and the company built four new steamers, larger and faster editions of the pioneers but still wooden paddlers. They had a gross tonnage of 1,825 apiece and were capable of maintaining a steady speed of ten and a half knots. Soon afterwards a branch line from Halifax to St. John's and Bermuda, and another to St. Thomas, were added and the subsidy was increased to £178,000.

The Ocean Steam Navigation Company.

It was in 1847 that Mr. Thomas Butler King of Georgia saw the advantages to that State of a steamship fleet, and worked in and out of season for its establishment. Finally he persuaded Congress to pass an Act in 1845 which permitted a postal subsidy to be arranged, and accordingly the Ocean Steam Navigation Company was founded in 1847 to place the *Washington* and *Hermann* on the service from New York to Bremen by way of Southampton. These ships attracted tremendous attention because they were the first American ocean-going steamers

that had been built since the *Savannah*. The subsidy was 200,000 dollars a year, and the contract provided for a fortnightly service, but it did not last very long and at the end of the first contract the subsidy was refused and the steamers were sold.

The Collins Line.

Although the Ocean Steam Navigation Company could not be described as a great success, the American people determined to take their full part of the steamship service on the North Atlantic and when Mr. E. K. Collins of New York decided to establish a steamship service in 1849 he had very little difficulty in getting sufficient support to persuade Congress to grant him a subsidy. He had to undertake twenty round voyages per annum in return for a subsidy of £4,000 per voyage, and for this he had four magnificent wooden steamers built which were named *Arctic, Baltic, Atlantic* and *Pacific*. They were ugly enough, for he abandoned the old-fashioned clipper stem of the sailing ship for the straight stem which has since become universal, but they were superior to anything afloat at the time. On account of this their cost worked out very much higher than was anticipated, but the Government decided to assist in the matter and increased the subsidy by 66 per cent. At the same time they insisted on higher speed and the Collins ships had little difficulty in winning the Atlantic Blue Riband.

The Cunard Answer to the Collins Line.

Immediately the Collins competition made itself felt the Cunard ordered two new steamers, the *Africa* and *Asia* of 1850, ships of over 2,200 tons magnificently fitted. Unfortunately they were coal eaters and just failed to beat the Collins ships in point of speed, so that in 1852 they built the *Arabia* of 2,402 tons. She was a colossal coal eater but could contrive the wonderful speed of fifteen knots in smooth water. This was very much faster than any other ship on the North Atlantic but it could not be maintained at sea and she had to pay for it in vibration, with the result that her hull was soon wracked to pieces and she had to be sold to the scrappers.

The Foundation of the Inman Line.

In 1850 the Inman Line was founded, or to be more correct the Liverpool, New York and Philadelphia Steamship Company. Mr. William Inman was the founder and general manager, and was a brilliant man who had worked his way up from the position of clerk to a partnership in a Liverpool Line which specialised in sailing packets across the Atlantic. He knew the emigrant trade intimately and in company with Messrs. Tod & McGregor, the Glasgow shipbuilders, he was convinced that a line of screw steamers, properly managed, could take the cream of the emigrant business. Accordingly the *City of Glasgow* started the service in 1850, a screw steamer of 1,600 tons, and it is typical of Inman that he and his wife travelled as steerage passengers in order to see what was wanted at first hand. So wisely did they make their arrangements that some of the ships showed as much as forty per cent. profit and they carried a colossal number of emigrants, although it must be

admitted that their success was responsible for the establishment of most of their rivals. At first they were content with the emigrant service only, but in 1860 they increased their schedule, in 1863 again, and once more in 1866. They had secured the contract for the conveyance of U.S. mails in place of the Collins Line in 1858 and also interested themselves in the Halifax run. They built some magnificent ships but they had a number of serious accidents and several of their ships were lost with heavy casualties. They entered the lists for the Blue Riband with the *City of Paris* in 1869, when she did the run from Queenstown to Halifax in 6 days 21 hours, and also did splendidly in the matter of speed with the *City of Chester*, *City of Richmond*, and the first *City of Berlin*. The last-named was built in 1875 and was one of the biggest and fastest ships of her day. She was not only a record breaker but an extraordinarily comfortable and famous vessel and was not broken up until after the war, after a varied career as a liner, U.S. transport and training ship.

The First German Liners.

The Hamburg-American and North German Lloyd Lines were originally founded to run with sailing ships, but in 1853 a shareholder of the former company suggested the transfer to steam. This was immediately declared to be quite impossible without a heavy Government subsidy, but at that time the German Government was very much against emigration in every form as it maintained that it was draining the country of possible conscripts. The matter was therefore dropped, but shortly afterwards the North German Lloyd proposed a steamship service from Bremen and Antwerp, and immediately the Hamburg-American decided that they would not be outdone and ordered two steamers without a subsidy. These ships were commissioned in 1855 and about the same time the rival Bremen Company came out with steam tonnage. It was a long time before the sailing ships were finally dropped from the passenger service, but the steamers had the cream of the trade and about eighty per cent. of the traffic carried was in the steerage. After the American Civil War there was a colossal increase in emigration in spite of the German Government's efforts, and the two big companies took full advantage of it. Unfortunately any number of other companies were put on the route at the same time and competition was so keen that the trade was cut almost to nothing. Time and again a heavy subsidy was suggested, but the German authorities would not hear of it.

The "Great Eastern."

It was in the middle 'fifties that the famous *Great Eastern* appeared on the North Atlantic, and being absolutely unsuited for the trade in every way she immediately proved herself an utter failure. As she is fully described in the next chapter it is sufficient to say here that other shipowners in the North Atlantic were so convinced that she would not answer on a short route that her appearance made scarcely any impression on them at all, although the whole world was interested in her as a gigantic experiment.

(*Macpherson Collection*)

THE "CURAÇAO," BUILT AT DOVER, 1826
(From a Colour Aquatint by W. H. Hoogkamer after Lieut. C. van der Hart)

The little Curaçao, *with which the Dutch Government maintained a steam service to the West Indies, is all too often neglected by the historians, although her achievements made her one of the most important ships in the history of Atlantic steam navigation.*

(*Macpherson Collection*)

THE "GREAT WESTERN" LEAVING BRISTOL FOR NEW YORK, APRIL, 1838
(From a Colour Aquatint by Reeve after a Painting by Joseph Walter, Bristol, published 1840)

Although she was beaten in time of arrival by the little Sirius, *the* Great Western *was by far the better ship of the two and made the better time across the Atlantic.*

(*Macpherson Collection*)

THE "ROYAL WILLIAM" IN MID-ATLANTIC ON HER FIRST VOYAGE TO NEW YORK, JULY, 1838
(From a Colour Lithograph by T. Fairland, after a Painting by S. Walters from a Sketch taken at the time)

The Royal William *that sailed to New York in* 1838 *is not to be confused with the little Canadian-built steamer which had already crossed the Atlantic under steam.*

S.S. "BRITISH QUEEN," 1862 TONS, COMPLETED IN 1840
(From a Colour Aquatint by Duncan after Huggins)

S.S. "PRESIDENT," 2366 TONS, LAUNCHED 1839, LOST 1841
(From a Colour Aquatint by Reeve after Walters)

Designed to maintain a regular steam service across the Atlantic before the Cunard Line appeared on the scene, the British Queen *and* President *never contrived to equal their rivals in popularity, and the latter finally disappeared with all hands.*

The Change to Iron.

John Burns who was in charge of Cunard construction, soon realised that they would have to do something drastic in order to get the necessary strength and lightness to retain the Blue Riband without excessive cost. Accordingly he turned to iron and in 1856 the famous *Persia* was put on service. She was their first iron express steamer, a magnificent vessel of 3,300 tons gross, with one of the prettiest hulls ever put into the water. Her engines indicated 4,000 horse-power and she burnt 150 tons of coal a day owing to the extravagance of the paddle. She crossed the Atlantic at an average speed of 13.95 knots, and even touched sixteen and a half on occasions. Like most pioneers of a new type the *Persia* required a certain amount of attention and the company had to spend £40,000 to strengthen her at the bilges. They had, however, learnt a lot from her design and therefore improved on it with the *Scotia* of 1862, the last of the great paddle Atlantic liners and one of the finest ships of her type ever launched. She had a gross tonnage of nearly 4,000 and an indicated horse-power of nearly 5,000 so that she contrived sixteen and a half knots on her trial trip and with a record of 8 days 22 hours from New York to Liverpool established herself as the crack ship on the Atlantic. She was so big that the Cunard Company decided with her to go in for the carriage of emigrants; until then they had only carried first and second-class passengers and had left the emigrant trade practically entirely to the sailing packets which were still to be seen on the North Atlantic. This steerage traffic, with the improvement in the Irish railways which permitted a fast through time, was responsible for the establishment of the call at Queenstown in 1859.

The Galway Line.

Ever since the early days of steam navigation there have been enthusiasts on the subject of an Atlantic terminal port in the West of Ireland. The Queenstown call is not sufficient, they must have a real terminal which will afford the shortest ocean voyage across the Atlantic and Galway or Blacksod Bay are the points generally selected. The famous Galway Line, or more properly the Royal Atlantic Steam Navigation Company, was proposed in the beginning of 1859, its sponsors being a party of enthusiastic patriots who had none of them had the least experience of shipping affairs. They proposed to carry the mails across from Galway to Boston or New York for a subsidy of £3,000 per round voyage, and as that was before the days of the submarine cable they also suggested carrying telegraph messages from Galway to St. John's, Newfoundland, when they would be dispatched by the land line. A good deal of political influence was brought to bear, so that in April, 1859, the Government signed a contract with them by which they undertook to build four ships of 2,800 tons apiece, which should be capable of seventeen and a half knots. When the first of this quartette—the *Connaught*—was tried, her speed was only about thirteen knots, while none of the four were delivered in time to pick up the contract on the date specified. They therefore chartered the *Parana*, but

she took over seven and a half days to reach St. John's, and nearly twelve to New York. The *Connaught* then took a sailing to Boston direct, missing the St. John's call, but she was nearly twenty-four hours over time and was burned on her second voyage. The second ship to be completed was the *Hibernia*, but on her way round to be delivered by her builders she ran into bad weather and was so severely damaged that she never ran on the service at all. The third one was the *Columbia*, but she took ten days, seven and a half hours to St. John's instead of six days, being badly damaged by the ice. Finally they purchased the famous old Collins liner *Adriatic*. She was the only ship that contrived to run in contract time, but in doing so she so strained her engines that at the end of the voyage a cylinder burst and killed an engineer. So the company collapsed entirely and their collapse brought about the fall of Messrs. Overend Gurney & Company, the bankers, who in their turn ruined a number of shipowners.

The Loss of the "Arctic."

One of the greatest tragedies of the Atlantic in the 'fifties was the loss of the *Arctic*, one of the crack ships of the Collins Line. She left Liverpool for New York on September 21st, 1854, with 233 passengers and 135 men in the crew, carrying a valuable cargo. Amongst her passengers were the wife and children of the head of the line. Sixty miles off Cape Race, during a storm, she came into collision with the French vessel *Vesta*, a small ship carrying passengers. The people on board her considered that she was doomed and rushed the boats, with the result that a number were drowned before it was discovered that she was practically undamaged. Her captain therefore took her into St. John's with comparatively little difficulty, apparently never imagining that the big Collins liner could be seriously hurt. As a matter of fact, she was soon seen to be sinking, and an attempt to beach her at Cape Race was frustrated by the water reaching her furnaces. In launching her boats in bad weather several of them stove in, with the result that only two, with 45 survivors in all, succeeded in reaching the Newfoundland coast. Before she went down her seamen contrived to fashion a big raft on deck, and on this 72 men and four women sought safety. One after the other they were washed off until in the morning only one man remained, to be picked up by a passing vessel some hours later. Very shortly afterwards, early in 1856, her sister ship the *Pacific*, with nearly 200 people on board, disappeared with all hands, the supposition that she had struck an iceberg being supported by the fact that her Cunard rival had a very narrow escape. Soon after this the U.S. Congress suddenly withdrew the subsidy and a gallant attempt to maintain the Stars and Stripes on the Western Ocean collapsed.

The "China."

The Cunard Line had already experimented with screw ships for its minor services, but in 1862 they built the *China*, an iron screw steamer, for their mail route. The paddlers were satisfactory as far as they went but they were obviously grossly expensive and the day of the large subsidy was over. The *China* had a gross tonnage of 2,539

and with half the coal consumption of the *Scotia* was practically as fast. She also permitted a great development of the steerage traffic which by then was beginning to pay well, and was followed by the *Cuba, Java* and *Russia,* each one a very marked improvement on her predecessor. When their subsidy was cut down to £70,000 a year, however, they made a great mistake by trying to economise in tonnage and for the only time in its history the Cunard Line was absolutely eclipsed by the other companies for a spell. The second-class ships which they put on service were no match for their rivals, while it had to be admitted that the men at the head of affairs were by then well on in years and of a very conservative temperament. For fifteen years they attempted to live on the reputation they had built up, but by then the Atlantic passenger was very much more exacting. For a time they dropped into the second place; then new blood had its way and they forged ahead once again.

The National Line.

In 1863 a number of Liverpool business men caught the glamour of the war boom of the American Civil War and founded a company which was to run to the Southern States immediately they had obtained their independence. They were designed for the cargo and steerage trade with a few first-class passengers, but as they were ready long before the war showed any signs of coming to a close they were put on the New York run, their typically Southern names, such as *Louisiana* and *Virginia,* being tactfully changed to the names of countries. They were quite successful from the first and obtained such a big clientèle in the third-class passenger traffic that they were forced to build ship after ship. Unfortunately later they were not content to stick to the steerage business that made their name, and being desirous of winning the Blue Riband they finally ruined themselves and the remnants of their fleet were taken over by a rival company.

The Guion Line.

The Guion Line was the direct descendant of the Black Ball Line of fast sailing clipper packets which Messrs. Williams & Guion of New York had made the most famous on the Western Ocean. They opened a branch house at Liverpool and this house became the famous steamship company. They first turned to steam in 1863, by which time the sailing packets were being rapidly superseded. They began by a third-class agency for the Cunard and National Lines, but in 1866 they started operations with the steamer *Manhattan* of 3,182 tons, having themselves registered as the Liverpool & Great Western Steamship Company. The ships ran under the British flag for the advantages of lower costs and cheaper construction, but the shareholders of the company were mostly Americans. After a very short time they established themselves as a weekly service, not attempting to compete with the big cracks for speed but carrying a large amount of cargo and third-class passengers. In 1873 they tried the experiment of big speed with two freak ships, the *Montana* and *Dakota,* among the most peculiar vessels that have ever been put on the North Atlantic, but they were utter failures and it was

not until 1879 that they set about building record breakers in earnest As in the case of the National Line it was this decision to enter a trade to which they were strange that led to the collapse of the company.

The Compagnie Générale Transatlantique.

The great French Line, the Compagnie Générale Transatlantique came on to the North Atlantic in the summer of 1864, although it had run services in various forms and under various names to the West Indies and elsewhere for some time previously. The Emperor Napoleon III had a big scheme for encouraging French shipping and he desired a really first-class service on the North Atlantic that could compete with the British and German services already established. They commenced operations with British built paddle steamers of rather more than 3,000 tons each with a speed of fourteen knots, the pioneer being the *Washington*. These ships were assisted by a heavy Government subsidy but they greatly exceeded the terms of their contract and soon made themselves popular, with the consequence that the company decided to convert the best of them into screw ships and with these succeeded so well that they were able to develop services nearly all over the world and open a magnificent shipyard of their own at St. Nazaire.

The Beaver Line.

Officially it was the Canada Shipping Company, but the Beaver on its house flag always caused it to be known as the Beaver Line. It was founded in 1867 in Canada and commenced with a number of magnificent iron built sailing ships all named after Canadian Lakes. It was finally the extortionate charges of the Canadian tug owners that decided them to go in for steam, building their first fleet of three ships in 1875. This firm passed through various vicissitudes before it was taken over in 1903 by the Canadian Pacific Railway and became the nucleus of their Atlantic steamship service.

The Dominion Line.

The seasonal character of the Canadian trade and the gradual recovery of the South from the effects of the Civil War encouraged the formation in 1870 of a concern known as the Mississippi & Dominion Steamship Company, which planned to run ships to Canada in the summer and to New Orleans in the winter. To begin with, the company met with very considerable difficulties and after a time they decided to abandon the Gulf trade altogether and to confine themselves to the St. Lawrence run. In this they were far more successful and they existed until 1926 as one of the big forces in the Canadian trade. Their great rival was the Allan Line, which had started from small beginnings in the early days of the century, had secured the Canadian mail contract in the 'fifties and had kept themselves in the forefront of the St. Lawrence trade. The route was a dangerous one and they lost a number of ships, but they hung on with Scottish doggedness and maintained their position until they were absorbed by the Canadian Pacific as recently as 1916.

(*Macpherson Collection*)

THE "BRITANNIA," PIONEER STEAMER OF THE CUNARD LINE, LEAVING BOSTON FOR LIVERPOOL THROUGH A CANAL CUT IN THE ICE, FEBRUARY 3, 1844

(From a Colour Lithograph by De Vaudricourt, after a Sketch by J. C. King, published 1844)

The inhabitants of Boston so appreciated the Cunard service that they refused to accept a penny towards the cost of cutting a long canal which permitted the pioneer Cunarder to take her sailing.

(*Macpherson Collection*)

LAUNCH OF THE "GREAT BRITAIN" AT BRISTOL, JULY 19, 1843

(From a Colour Lithograph by Picken after Joseph Walter)

So well was she built that the famous Great Britain *is still in existence in the Falkland Islands as a hulk. Not having any official name for her six masts they called them after the days of the week, it being very truly said that there was no Sunday at sea in those days.*

(*Macpherson Collection*)

THE U.S. MAIL STEAMSHIP "HUMBOLDT," BUILT AT NEW YORK, 1850
(From a Colour Lithograph by Lemercier, published 1852)

The Americans were the first to abandon the sailing ship's clipper stem and bowsprit in favour of the strictly utilitarian but unsightly straight stem. The Humboldt *was wrecked in* 1853.

THE CUNARD STEAMSHIP "ASIA," 2,226 TONS, BUILT 1850
(From a Colour Lithograph by Dutton after S. Walters, 1851)

THE "PERSIA," FIRST IRON CUNARDER, BUILT 1855
(From a Colour Lithograph by Parsons)

After the original quartette the Cunard Line steadily improved their tonnage, but each class was only an improvement on its predecessor, and no radical alterations were attempted. An iron paddle steamer of 3,300 tons, the Persia *was the wonder ship of her day, and was still a thing of beauty.*
(Prints lent by Messrs. T. H. Parker)

The Beginning of the White Star Line.

For many years past the White Star Line has held a very prominent place in British shipping, but the company as we know it at present did not start until 1870. There had been a famous White Star Line of racing clippers to Australia and when they were elbowed off the seas by the spread of steam a Liverpool company named Ismay Imrie & Company bought the name and the famous house flag with the intention of running steamers to Australia. They went to Messrs. Harland & Wolff, a comparatively new firm of shipbuilders who were making great strides in Belfast and who were introducing an entirely new type of ocean steamer, very long in proportion to their beam and violating some of the first canons of the old ship construction. This new system had been tried by the Bibby Line with comparatively small craft running to the Mediterranean, and the idea of adapting it to ocean going steamers horrified many people. Yet adapted it was with the very greatest success, although before they started operations the company decided that they would run to New York and not to Australia, commencing the service with the famous *Oceanic*.

The Struggle for the Blue Riband.

As is not unnatural with a ship that is designed for one trade and put on to another, the *Oceanic* was not a great success to begin with, but her owners and builders soon saw where the fault lay and immediately sent her back to Belfast to be altered. After that she and her sisters were among the most successful ships on the Western Ocean and their advent reawakened interest in the struggle for the Blue Riband of the Atlantic. The Cunard *Scotia* had lost it to the Inman *City of Brussels* in 1869 with an Eastward average speed of fourteen and a half knots. In 1872 the *Adriatic* of the White Star Line captured the West bound record and in the following year her sister the *Baltic* averaged fifteen knots Eastward. The Cunard Line were for the time out of the running, for they were concentrating their attention on slower ships, but the Inman Line took up the challenge and built their famous *City of Berlin*. Eastward her average was fifteen and a quarter but the White Star followed her up with the famous sister ships *Britannic* and *Germanic* of 1874, who both contrived to beat her time and then settled down to a rivalry against one another that was nearly as exciting as the struggle between the companies. Finally the *Germanic* had the Westward record and the *Britannic* the Eastward, maintaining them until the Guion Line reappeared with record breakers in 1879.

The Disappearance of the Sailing Ship.

The earlier Atlantic steamers confined themselves to cabin and saloon passengers and left the emigrant trade to the sailing ships, so that they maintained some hold on the Western Ocean for lar longer than one would have expected considering the development of the steamer. The 'sixties really saw the end of them and although of course there were large numbers carrying cargo of various sorts, especially timber cargoes, the steamer was triumphant on the North

Atlantic earlier than on any other sea. The Atlantic passenger liner naturally developed more rapidly than any other and its progress since 1875 has been even more rapid than that which has been traced in this chapter, but the cargo steamer also calls for attention. The comparatively short journey across the Atlantic did away with the old difficulty of coal, while the majority of the cargoes carried were so valuable that speed was a big consideration. There have been a number of ships of all sorts go missing in the Atlantic but generally speaking the shipping companies have contrived and maintained a wonderfully regular schedule and the Western Ocean trade might be described as an ocean railway without exaggeration.

CHAPTER VI—THE SPREAD OF STEAM

The Foundations of Success.

At the end of the last period there were many who dreamed of the whole of the sea's surface interlaced with steam services, but there were many who condemned such ideas as fantastic. But the sound foundation that had been laid in the various coasting services paved the way to success, for there was very little difference between the ship which ran from the Thames to the Forth and those which ventured across the Atlantic or to India, and the vessels which plied on the Hudson were only one short step behind those which established the long coasting trade.

The Voyage of the "Enterprise" to India.

The history of the voyage of the little steamer *Enterprise* to India is rather a curious one. In 1822 it was proposed to establish a company for the purpose of maintaining a steam service to India, and the promoters sent out Lieutenant J. Johnston, R.N., to stir up all the popular enthusiasm that he could. He certainly succeeded, and in two years the public of Bengal raised 80,000 rupees, the Rajah of Oudh contributing 12,000. To this sum the Government of India added another 20,000, so that there was a tempting prize offered for the first steamer that could contrive two round voyages to India and back before 1826, the stipulated time for each passage being 70 days. The *Enterprise* was a little steamer of 479 tons, a barque-rigged wooden paddler which had already been laid down at Deptford, and as soon as they heard of the prize that was offered the promoters of the company immediately bought her. So she was two-thirds finished when Johnston returned to England and immediately saw that she was not by any means suitable for the work. Her dimensions were 122 feet by 27, she had an engine of 120 horse-power which gave her a maximum speed of 9 knots, but which was far more likely to work out at 6 or 7, and she consumed 10 or 12 tons of coal per day in doing it. She was finally completed at a cost of £43,000, so that, in spite of her unsuitability, she had to be used for the attempt. Lieutenant Johnston was put in command and, with 17 passengers and coal stowed wherever a place

could be found for it, she sailed from Falmouth on August 19th, 1825. She finally reached Calcutta 113 days out, but of this over 10 days had been spent coaling at St. Thomas and the Cape. She raised a tremendous stir when she made her way up the river, belching out dense clouds of black smoke, but as she was well outside the stipulated time, only half the prize was paid. Her owners had little to complain of, however, for the Government of India immediately bought her for £40,000 to take part in the First Burmese War, in which she carried despatches from Calcutta to Rangoon. They also were very well satisfied with their bargain, for it was estimated that her speed saved six lakhs of rupees by preventing the despatch of further troops after the Treaty of Malwa. In 1829 it was proposed that she should inaugurate the new passenger service between Bombay and Suez, communicating across the isthmus with the ships from England, but she broke down time and again and finally it was decided that she was far too unreliable, and the *Hugh Lindsay* was commissioned in her place.

The "Hugh Lindsay."

The Bombay Government was determined to establish its mail and passenger service between Bombay and Suez, and when they found that the Court of Directors of the East India Company would make no move they set to work independently. It was a great disappointment that the little *Enterprise* could not be relied upon for the service, but they found the *Hugh Lindsay*, a teak-built steam man-of-war which had been built at Bombay Dockyard and which was quite a stout vessel. She was under the command of Captain J. H. Wilson, and in spite of innumerable difficulties, such as coal supply, water conservation, loose paddle wheels, and a score of other handicaps, she contrived to reach Suez in 21 days 6 hours' steaming time, nearly 33 days' gross. It was hoped that a steamer would be ready at Alexandria so that the mail time to England might be brought within two months, but they were disappointed in this. Afterwards she did one passage a year over this route, and as the organisation for coal and water was improved her time went down rapidly. Furthermore, she proved that the passage could be made during the North-East Monsoon, which everybody had foretold would baffle any steamer, and it was her success against all discouragement that laid the foundations of the Suez route to the East which is the main artery of the British Empire to-day.

The Start of the P. and O. Line.

The famous Peninsular and Oriental Line, which is now one of the greatest shipowning companies in the world, started in a very modest way by the charter of a number of small steamers, most of them packets from the Irish Channel run, for the mail service to Spain. The company was founded by Messrs. Willcox and Anderson, shipbrokers, who managed the Dublin steamer *Royal Tar* when she was chartered to Don Pedro of Spain and so became interested in the Spanish trade. That was in 1834 and in 1837 they drew attention to the undeniable fact that the sailing of Post Office packets which maintained a nominally weekly service between Falmouth and Lisbon were anything but satis-

factory, while even the Government steamer which carried the mails to Cadiz and Gibraltar was very much inferior to the tonnage that they could put on the service. They therefore approached the Government with a suggestion that they should carry the Peninsular mails, but they were pitted against vested interests and for a time their suggestion was turned down. They persisted, and as at the time there was a public outcry against the Government mail service they were finally asked to put forward a concrete suggestion. The Government examined their plan, approved of it, and then used it as a basis for inviting competition. This the Peninsular Company, as it then was, felt was most unfair. However, the competing company could not satisfy the requirements, so that in August, 1837, they signed a contract for the conveyance of the Peninsular Mails for an annual subsidy of £29,600 per annum, which was afterwards reduced to £20,500. The *Iberia* took the first mails under this agreement, sailing in September, 1837.

The P. and O. Company and the Indian Mails.

Until 1839 the routine for the Indian mail service was by Admiralty packet to Dover, then overland to Marseilles, where another Admiralty packet took the mails to Malta. Then yet another took them on from Malta to Alexandria, together with the heavier mails that had gone out by the sea route. As part of the service was four-weekly and the other part monthly a good deal of confusion arose and finally it was suggested that the Peninsular Company should take over the contract and run steamers between England and Alexandria, calling at Gibraltar and Malta. The Peninsular Company's tender for this service was £34,200; the lowest of the other three offers was £51,000. So the Peninsular Company's bid was accepted, and the extension of the service added the " Oriental " to their name. They also provided two small steamers for the Malta and Corfu branch, and they contrived to maintain the service at a saving of over £10,000 on the old Admiralty method.

The Overland Route.

When the mails and passengers arrived at Alexandria by P. and O. steamer they were transhipped and carried across the Isthmus of Suez in a colossal caravan. The greater part consisted of camels, but every imaginable vehicle was brought into use and the whole cargo transported to Suez, where one of the steamers of the East India Company was supposed to be waiting to carry it on to Bombay. The ships that they used were quite inefficient and useless for the purpose, but the company was not going to be dictated to by anybody and they refused to make any improvement in the service until it was long overdue. In 1842, in consequence of very strong pressure brought by the Home Government, the P. and O. Company put the new steamer *Hindostan* on the service between Suez, Calcutta, Madras and Ceylon. She was only allowed to carry passengers and cargo, the East India Company still insisting on carrying the mails, at a cost of over £100,000 per annum, until 1854. The more distant mails, however, were carried by the P. and O. on a subsidy of £115,000 per annum, and a monthly service to Singapore and Hong Kong was soon added. The East India Com-

(*Macpherson Collection*)

THE S.S. "ATLANTIC," PIONEER OF THE COLLINS LINE, LEAVING THE MERSEY FOR NEW YORK
(From a Proof Lithograph in Colours by Picken after S. Walters, 1855)

Typically American in design, the ships of the Collins Line were the most elaborately fitted vessels at sea in their day, and maintained the Stars and Stripes on the Western Ocean until their subsidy was suddenly withdrawn.

(*Macpherson Collection*)

THE WHITE STAR STEAMER "BALTIC," BUILT AT BELFAST IN 1871
(From an Oil Painting by A. Jacobson)

In the ships which they built for the White Star Line in the early 'seventies Messrs. Harland & Wolff, of Belfast, introduced to a surprised shipping world the entirely new ideas of construction to which they have adhered ever since.

(*Macpherson Collection*)

THE "ENTERPRISE" ENTERING MADRAS ROADS ON HER HISTORIC VOYAGE TO CALCUTTA, 1825

(From an Aquatint by E. Duncan after J. W. Huggins)

Although she was not in time to win the big cash prize collected in India, her voyage was so good that she was given half of it and was later purchased as a man-of-war.

(*Macpherson Collection*)

THE "IBERIA," ONE OF THE PIONEERS OF THE P. & O. LINE, OFF GIBRALTAR, 1836
(FROM AN AQUATINT IN COLOURS BY DUNCAN AFTER HUGGINS, 1836)

Although their little steamers kept infinitely better time and were more popular than the Post Office steam packets, it was a long time before the Peninsular Line, as it then was, could persuade the Government to entrust it with the carriage of mails.

pany's Bombay service was so inefficient that occasionally native sailing vessels were used because there was no steamer available, and when one of these was sunk with her mails the home authorities insisted on the P. and O. being given the contract, which they took for under £25,000 a year, saving £80,000 on the old Government service.

Auxiliary East Indiamen.

In 1840 Greens of Blackwall made the experiment of fitting East Indiamen with auxiliary power, this power consisting of a small engine driving paddles that could be unshipped. The most famous ships to be so fitted were the *Vernon* and *Earl Hardwicke*. The engines of the former were only of about thirty horse-power each, and were not intended to do more than take the ship over a calm. When she was under sail the paddles unshipped altogether so that however much she was heeling the lee wheel could not spoil her speed. At her best her engines could contrive five knots. It was confidently expected that she would do the passage to India in 70 days, but 86 was the actual time, the run from the Cape to Spithead of 42 days, with her engines in use for nine, being a record. She did not keep her machinery for very long, however, and soon settled down to a long career as a sailing ship of more ordinary type. Her consort also had a very short life as an auxiliary.

The British India Line.

In addition to direct communication with the Mother Country, Indian commerce has been very greatly increased by the coastal and local communications, which have been developed to a very great extent by the British India Line. It is now one of the biggest shipping concerns of the world, but when it started in 1856 as the Calcutta and Burmah Steam Navigation Company it was a very small company which with a capital of £35,000 undertook to maintain a fortnightly service between Calcutta and the principal Burmese ports. They began with two steamers which soon proved to be absolutely unsuitable for the work and which only justified themselves as transports for the Indian Mutiny. After that they increased their capital and built bigger and better tonnage, gradually increasing their services up and down the Indian coast. The company became the British India Line in 1862 and two years later commenced a service to the Persian Gulf. In 1863 it entered the Dutch East Indian trade with a big subsidy from the Dutch Government and commenced running steamers home to England on the opening of the Suez Canal. The association with the P. and O. Line, which has since grown into an amalgamation, commenced with an agreement to handle cargo on the Indian coast in 1870.

The First Australian Mail Service.

The first steam mail service to Australia was established in 1852 after a House of Commons Committee had inquired into the whole system. The P. and O. Line ran a branch from Singapore to Sydney for an annual subsidy of £166,000.

The Australian Mails.

In 1852 the first direct Australian mail steamer was launched and named *Australian*. She was built by Denny of Dumbarton, who had always specialised in fast vessels, and came into being on account of the great excitement caused by the discovery of gold in Australia and the rapid development of the country in consequence. There were some of the finest sailing ships in the world on the Australian passenger service, but they could not satisfy the desire for speed. Accordingly the *Australian* was purchased after having been laid down for somebody else, and, under the command of Captain Hoseason, sailed from Plymouth with the mails and a number of passengers in June, 1852. She arrived at Melbourne at the beginning of September after a number of breakdowns, mutinies and great dissatisfaction among the passengers. However, she had proved that it was possible to travel to Australia by steam, and she was followed by the reconstructed *Great Britain*.

The General Screw Steamship Company.

One very unlucky steamship venture in the 'fifties of last century was the General Screw Steamship Company, which was opened in 1853 with a number of magnificent auxiliaries, ships which had a full spread of canvas and at the same time sufficient steam power to take them over calms. It was anticipated that they would be a great financial success, and many prominent shipping men backed the new concern, but it was only the first of the many failures of companies that have tried to mix steam and sail power. One line was to run to India, another to South Africa, and a third to Australia. The Government of Mauritius gave a subsidy of £10,000 a year for a monthly service between Mauritius and Ceylon, but in spite of all the advantages and the public attention they attracted, the company could not make a profit, and they were only too glad to charter their tonnage to the Government for transport purposes during the Crimean War. After the collapse of the company practically all the ships had distinguished careers under other ownership.

The Tragedy of the "London."

One of the most terrible tragedies in the history of the sea was the loss of the steamship *London* in the Bay of Biscay in 1866. She was bound from Plymouth to Australia with emigrants and from the very beginning there were forebodings. When it was remarked that she looked uncannily like a coffin and also that her owners had decided to dispatch her on a Friday this was not unnatural. However, she had made two voyages quite successfully. A few days out she began to make very bad weather of it, losing spars and plunging heavily in mountainous seas, her fine speed lines being ill-adapted for the Bay of Biscay. Soon water was finding its way below in considerable quantities and this made her worse. Perhaps the most unfortunate feature of her design was that the coamings of her engine-room hatches were practically flush with the deck, so that as she rolled the water found its way into the engine and boiler-rooms and put out the fires. She was then helpless and the only thing to do was to try and keep her afloat with the pumps.

The finest example was set by Gustavus V. Brooke, a famous actor of the day and a colossal man, who worked magnificently at the pumps and did everything possible to encourage his fellow passengers. It is to be feared that the seamen behaved very badly, broaching some cases of liquor and working themselves into a state of drunken terror. Several Dutch members of the crew left the pumps and went below, declaring roundly that if they were to die they would die warm, and wrapping themselves up in their blankets to be drowned like rats in a trap. Finally she took her last plunge, carrying down her whole company with the exception of sixteen. Among the victims were six stowaways. The disaster caused engine-room hatches to be trunked up in modern fashion.

The "Golden Age."

In the 'fifties of the last century the Panama Canal was not constructed or even dreamed of except by a few far-sighted visionaries, but the American paddle steamer *Golden Age* proved the possibility of the Transpacific route between Australia and Britain. Her first passage was across the Atlantic to Liverpool, where she attracted a good deal of attention by the fact that she was given a straight stem instead of the usual clipper stem and bowsprit, thus following the example set by the Collins Line. She then went out to Australia, making a very fast passage. Leaving Sydney in May, 1854, she took on board 1,200 tons of coal at Tahiti—incidentally having to pay such a high price for it that the voyage resulted in a financial loss—and then sailed to Panama. Her 200 passengers with the mails and gold valued at a million pounds were sent across the Isthmus to the Royal Mail Steam Packet Company's steamer *Magdalena*, which was waiting for them at Chagres. Thus for the first time the mail passage between Sydney and London was reduced to 67 days. Later, sailing ships were to get very near this record, but when it was made it aroused great excitement.

The "Great Eastern."

Of course no history of the sea is complete without full mention of the *Great Eastern*, although no ship has had more written about her than she has. There are, however, some points in her career that have passed almost unnoticed and she had such a huge effect on public imagination that her history must be given somewhat fully. She was always put down as a white elephant and an utter failure, but as a matter of fact she narrowly escaped being a success. She was not intended for the North Atlantic trade at all, but for the Eastern and Australian runs, where she would have had a very much better chance owing to the coal difficulty. The idea of her sponsors was that she should carry enough fuel to run to Calcutta or Colombo with a huge cargo and a large number of passengers, where she would be met by a number of smaller vessels who would take her freights on to their destinations. This idea was good enough in its way and the company intended to build quite a number of *Great Easterns*, but all sorts of people had a say in her design and although many of them were brilliant men they were not all practical shipbuilders. Isambard K. Brunel and Scott Russell were her principal

designers and it must be admitted that they did wonders without any precedent to work upon. She had a gross tonnage of practically 29,000, but they made the mistake of thinking that they could do better by having both paddle and screw machinery, a combination that should have been tried in a smaller boat first. It would then have been shown that they got practically no advantage from a colossal waste of space and weight. At Millwall it was impossible to launch her directly into the river so that it was necessary to lay special ways broadside on, and these cost a lot. Brunel was quite convinced that she would go down with such a rush that it would be impossible to hold her up, with the result that he checked her as soon as she had gone down three feet when the first attempt to launch her was made in November, 1857. The cradle and ways were both of iron and they gripped so tightly that once they had stopped her progress it was impossible to start her again. Many months afterwards they got her to move with hydraulic jacks, but her launch alone cost her owners £120,000 and they had to go into liquidation.

The "Great Eastern" Sold.

The great ship was sold as she lay in the river for £160,000, but her new owners abandoned the idea for which she had originally been designed and instead put her on to the North Atlantic trade, for which she was absolutely unsuitable in every way. She was designed to carry 200 first-class, 400 second and 2,500 steerage passengers, and if she did the passage at fifteen knots and contrived to keep the expenses down at the level which was estimated she might have paid. Unfortunately she only got a fraction of her accommodation filled, could not average more than eleven and a half knots, and cost very much more to run than had been reckoned. Her original owners had intended that she should be capable of taking 10,000 troops to India, but when she was employed as a transport after the Trent Affair she could only carry 2,500 in comfort.

The Second Failure.

As might have been anticipated her new owners found it quite impossible to run her at a profit on the North Atlantic, with the result that they also came to grief and it was actually suggested that they should raffle the ship. Eventually she was sold for £25,000 although the bill for her original construction had been roughly £900,000. She then did magnificent work laying the Atlantic Cable, a job which probably no other ship could have done. There was no dock in the country capable of taking her, so that when she was laid up at Milford Haven for some years she collected a regular forest on her under-water body. Finally she was bought for £25,000 by an enterprising Liverpool firm who towed her round the coast as a floating fair. She was not at all popular in the different ports that she visited and some actually secured an injunction to keep her out. In 1877 she was taken into the Mersey and broken up, one of the most wonderful ships in the world which was made one of the most utter failures by that one mistake of checking her as she went down the ways.

(*Macpherson Collection*)

THE "MONARCH" STEAMSHIP Wm. BAIN, R.N., COMMANDER, PASSING THE BASS ROCK ON HER VOYAGE TO EDINBURGH, JULY 21, 1834, A VOYAGE PERFORMED IN 37 HOURS.

From a Colour Aquatint by E. Duncan after a Painting by W. J. Huggins, published 1835

(*Macpherson Collection*)

THE GENERAL STEAM NAVIGATION COMPANY'S STEAMER "BRITANNIA," LAUNCHED JULY 9, 1835.

(From a Contemporary Lithograph)

The coasting and nearby Continental steamers that were built in the early days of steam were fine little vessels and most of them were listed by the Admiralty as being quite capable of carrying heavy guns.

THE S.S. " VICTORIA," OF HULL, LAUNCHED SEPTEMBER, 1837.

(From a Colour Aquatint by Reeve after Ward)

One of the finest steamers built for the coasting trade in her day, the Victoria *was a most unlucky vessel and in sailing ship parlance was " a regular man-killer."*

THE P. & O. STEAMSHIP " HINDOOSTAN," LAUNCHED 1842.

(From a Colour Aquatint by E. Duncan after Huggins, Published 1843)

The rapidly growing business of the P. and O. Line and the improvements that they effected in the Eastern trade caused them to improve their tonnage rapidly.

(*Macpherson Collection*)

THE PACIFIC STEAM NAVIGATION CO.'S STEAMERS "LIMA" AND "QUITO."
(From a Colour Lithograph by T. Y. Dutton after William Clark 1852)

In spite of the early difficulties of the Pacific Steam Navigation Company in that they had to take all their coal round the Horn and supply themselves with all dockyard and other necessities, they prospered wonderfully and put some splendid vessels on their service.

(*Macpherson Collection*)

THE ROYAL WEST INDIA MAIL COMPANY'S STEAMER "ORINOCO," BUILT 1851.
(From a Colour Lithograph by and after T. G. Dutton)

The conservative manner in which the Royal West India Mail Company—better known as the Royal Mail Steam Packet Company—stuck to the paddle was very largely due to the insistence of the Admiralty officials, who had a great say in the design of their ships. They produced some magnificent vessels of this type.

The First Steamer in China.

The first steamer recorded as having visited Chinese waters was the *Jamesina*, which was sent out from Bombay. She went up to Canton, taking her pilot on board at Lintin. The story goes that all the ship's officers were keenly anticipating some amusement out of the old Chinaman introduced into such a novel ship, but he refused to betray the least curiosity. Finally they could not restrain themselves and pointedly asked him the question, whereupon they received the surprising answer that the Chinese had known steam for a long time but they did not consider it to be really worth while and had abandoned it as old-fashioned.

The "Sea King."

A particularly interesting auxiliary was the *Sea King* which was designed for the tea trade to China, a composite ship of just over a thousand tons, with a fine turn for speed under sail alone with her propeller lifted and ample power to move her in a calm. Her engines were of 200 nominal horse-power, which was big for an auxiliary. She did the run from Shanghai in 79 days, with five days wasted for coaling, which was a magnificent passage and made her reputation. In 1864 the Confederates bought her as a blockade runner and later commissioned her as a corsair under the name of *Shenandoah*. For this service she was under the command of Captain James Tredell Waddell, who had already distinguished himself in command of the ironclad *Louisiana* against Farragut. He commissioned the *Shenandoah* in 1864 and took her to Melbourne, destroying Northern ships all the way round, after which he went up to the North Pacific and made hay of the American whaling fleet there. As a matter of fact he continued his depredations some time after peace had been declared, but he did not know that. When he heard of it he did not surrender his ship with the rest but sailed her to Liverpool where he handed her over to the British authorities, an act which caused them a good deal of embarrassment. The old *Shenandoah* finally foundered while she was owned by the Sultan of Zanzibar.

The Royal Mail Steam Packet Company.

The Royal Mail Steam Packet Company, which is one of the best known under the British flag, started in 1838 with Mr. James McQueen, who was a company promoter with a particularly keen interest in shipping matters. He contrived to interest a number of London merchants in his scheme for a steam service to the West Indies and in 1839 obtained a Royal Charter. The first capital of the company was 15,000 shares of £100 apiece, with £50 called up, and in 1840 he contrived to get a mail agreement with the Government. This contract was for a term of ten years and the company undertook to provide a fleet of approved steamers to maintain two sailings a month. Sailing vessels were to maintain inter-island communication in the West Indies. In return for this they were to receive a subsidy of £240,000 per annum, with a possible

£60,000 more, but with very heavy penalties for any failure to comply with the terms. To begin with they ran in naval fashion, all their ships being commanded by naval officers and all their officers being given the right to wear swords—which were sadly in the way while tallying cargo. They very soon found it impossible to make the service pay, for it was a very expensive matter to run steamers in those days, but finally they obtained various concessions in their contract and in the late 'forties they turned the corner. When the Pacific Steam Navigation Company started on the other side of the Isthmus of Panama they organised a service overland to connect with their steamers. The Admiralty still maintained a very considerable say in their affairs and it was not until 1853 that they were permitted to build iron ships. By pursuing a steady, conservative policy the R.M.S.P. made themselves one of the most important shipping companies in the world, although of course the nature of their service prevented them from building such spectacular vessels as were to be found in the North Atlantic.

The R.M.S.P. and South America.

After they had worked the West Indian mail service into a very efficient condition the Royal Mail Steam Packet Company decided that they could go further afield, and the British Government was only too willing to entrust them with the carriage of mails to South America. In June, 1850, the agreement was signed by which the company agreed to maintain two sailings a month to the West Indies and one to the River Plate by way of Brazil. For this extra service their subsidy was increased by £20,000 a year only, and they were forced to build at least five new steamers. Two of these never took a sailing, the *Amazon* being burned on her maiden voyage with terrible loss of life and the *Demarara* being wrecked in the Severn on the way down from her builders' yard. In 1860 the Government demanded an improved service and although this was granted it did not prevent them from putting the tender up for competition two years later. The mail contract was renewed time after time, each occasion demanding a better service for a smaller subsidy. The ships of the Royal Mail Company were expensive to build and maintain, and for many years they were tied helplessly by Government requirements.

The Pacific Steam Navigation Company.

The Pacific Steam Navigation Company is regarded as an essentially British concern, yet the principal credit for its foundation must be granted to an American, a Mr. William Wheelwright, who was the U.S. Consul at Guayaquil. He made up his mind that there was big money to be made by developing the steamship possibilities of the Southern Pacific, and although he had a very disparaging precedent, he pressed on with his scheme. This precedent occurred in 1825, when a Spanish Jew named Mitrovitch took a small steamer named the *Telica* out to the west coast of South America. His great handicap was the difficulty of obtaining fuel, and this caused such irregular sailings that

people began to complain. Finally he became tired of these complaints and, firing a pistol into a barrel of gunpowder while his ship was lying in the harbour of Guayaquil, he blew up the ship, himself and all the complaining passengers, with the exception of one man who managed to swim ashore. As far as the supply of coal was concerned, things were not very much more satisfactory when Wheelwright started his scheme in 1840. He first tried to obtain financial support in the United States, but, failing in this, he went across to England and not only obtained the capital but also a charter and a small subsidy for carrying the British mails along the west coast of South America. He started with a capital of a quarter of a million pounds and two small steamers, the *Chili* and *Peru*. These were vessels of only 700 tons register, but the best that had yet been seen in the South Pacific. The P.S.N. Company had to contend with many difficulties, but obtained a supplementary charter in 1846, and in 1850 a renewal of the mail contract on such terms that it was able to build new and greatly improved tonnage and to put things on a thoroughly satisfactory footing which carried the company, in spite of reverses and many discouragements, well into the present century.

The Union Line.

The first regular steam service to South Africa started in 1853 with the Union Steam Collier Company, which built five little steamers for the coastal and Continental trade. When the Crimean War broke out they were chartered by the P. and O. Line to maintain the mail services to the Mediterranean in place of the steamers which had been taken up as transports by the Government. Soon afterwards they themselves were taken up for trooping, although they appear to be far too small for the purpose to modern eyes. At the end of the war it was decided to run them on a regular service to Brazil, but in competition with the Royal Mail Steam Packet Company this proved an utter failure. Before they had lost all their capital the company took them off the run and started them to South Africa, obtaining a five-year contract with the Post Office for a subsidy of £30,000 a year. The biggest ship of the fleet was only just over 500 tons but they succeeded in satisfying the Government and presently worked into bigger tonnage and the foremost place in the Cape trade.

Sir Donald Currie.

One of the great figures of British shipping in the latter part of the nineteenth century was Sir Donald Currie, who in the end made himself the principal figure in the South African trade. As quite a youngster he had distinguished himself in the service of the Cunard Line, showing remarkable ability in getting business and in establishing branches, so that when he finally decided that he would start shipowning on his own account he had no lack of backers. It is very much to his credit that he stubbornly refused to be financed for a service on the North Atlantic, saying that he would never run against his old

employers. So he started with big sailing ships in the Indian trade and finally decided to build steamers for it. After a voyage or two, however, he saw that there was very little money in that trade, so he transferred his activities to the South African, running his Castle Line of packets in opposition to the older Union Line and finally buying them out.

The General Steam Navigation Company.

The General Steam Navigation Company is one of the most famous of the British coasting and short distance concerns, being founded in 1820 when a Deptford timber merchant named Thomas Brocklebank bought the little steamer *Eagle* and put her on the Thames passenger service. So well did she pay on that run that he persuaded a number of business men to join him in the formation of a steamship company which was intended to run all over the world and which adopted the globe as its crest. In 1824 the company was registered as a limited liability concern with a capital of two million pounds, which was then considered colossal for such an enterprise. After a good many troubles in their early years they began to forge ahead, not only in the coastal services but also to Dieppe, Ostend, Hamburg, Rotterdam and a number of other Continental ports. The steamers were all built to act as cruisers should the British Navy require them. It was a long time before they abandoned the idea of running an Indian service in competition with the P. and O. Line but finally they decided not to go further afield than the Mediterranean and this policy has proved successful.

The Bibby Line.

While the P. and O. Line were covering the overland route from the East the Bibby Line came into very considerable prominence taking their cargo from Alexandria to England. The company had been founded in 1807 with a number of small sailing vessels. In the late 'thirties Mr. Bibby, who had been working single-handed, ran a service to the East Indies and it was not until 1851 that the company turned to steam with two ships named the *Tiber* and the *Arno*. They did well in general trade and were very useful troopers in the Crimean War. So successful were they that Mr. Bibby decided to go into the Mediterranean trade with the whole of his resources and in 1858 went to Harland & Wolff of Belfast for the first steamer to be built by that famous firm. Their business in the Mediterranean, however, was very largely connected with the P. and O. overland service, so that when the Suez Canal was cut they retired from the business, the fleet and goodwill being sold to Mr. Leyland and forming the nucleus of the Leyland Line.

The Messageries Maritimes.

The great French steamship company running to Australia and the East was originally the Messageries Impériales. To begin with they carried the French mails and parcels on land but in 1851 Napoleon III

(*Macpherson Collection*)

THE "JOHN L. STEPHENS," BUILT IN NEW YORK, 1852, FOR THE PACIFIC MAIL STEAMSHIP COMPANY

(From a Colour Lithograph Contemporary)

The long distance coasting service up the Pacific coast of the United States, and later the Transpacific run, brought into being a new type of magnificent paddle steamer, but the company suffered from the same difficulty as the British P.S.N. Line.

(*Macpherson Collection*)

THE "GOLDEN FLEECE" CLIPPER AUXILIARY STEAMSHIP.
(From a Colour Lithograph by Vincent Brooks after Josiah Taylor, Published 1863)

In the middle of last century, just as during the war, there was a great vogue for auxiliary steamers but it led to the ruin of a number of shipowners and the system was seldom successful.

(*Macpherson Collection*)

THE "BATAVIER" PIONEER STEAMER OF THE NETHERLANDS STEAMBOAT CO.
(From a Colour Lithograph by Jones and Causton)

The mail service to Holland by the Batavier Line, which is mentioned in Thackeray's "Vanity Fair," was started in the 'thirties and is a most important route.

Macpherson Collection]

THE STEAM CLIPPER "ROYAL CHARTER."
(From a Colour Lithograph by John R. Isaac after S. Walters, Published 1856)

Another of the fine clipper ships built in the middle of the last century, the Royal Charter *is principally remembered by her tragic wreck off Holyhead in* 1859.

encouraged them to take up a contract for carrying the French mails all over the Mediterranean, a contract that was increased from time to time until they had worked up a network of services. In 1854 they were called upon to transport French troops to the Crimean War and after that they grew rapidly, pushing out their services to the East, to Australia, to South America and in fact all over the globe. Ever since they commenced their work they have been heavily subsidised by the French Government, but unlike most heavily subsidised companies they have worked very hard and maintained an excellent organisation the whole way through.

The Navigazione Generale Italiana.

The premier Italian shipping company was founded in 1850 as the Rubattino Line to run a number of services from Genoa to the Far East, but it was a very small concern until the opening of the Suez Canal in 1869. The firm of I. & V. Florio began operations at Palermo some years later and did remarkably well in the short distance services, absorbing a number of its competitors and their fleets. In 1877 it entered into a working agreement with the Rubattino Line and some years later the two were completely amalgamated.

The Start of the Blue Funnel Line.

It has already been mentioned how the opening of the Suez Canal destroyed the chances of the old clipper ships, and the shipowner who was most responsible for it was Mr. Alfred Holt of Liverpool who started operations in the 'fifties. His first venture was a small steamer called the *Dumbarton Youth* which he bought as she lay on the death of her late owner. For her mourning band the captain had laid in a good stock of blue paint, while her cargo consisted very largely of bibles for West Africa. History does not relate what happened to the bibles, but the blue paint was used on her smoke stack and so the familiar Blue Funnel Line came into existence. After several experiments Mr. Holt saw the advantages of the Eastern trade in 1866, and when the Suez Canal started he took the first opportunity of sending his ships through it. By this short cut and the fact that they were given speed that was far superior to any cargo ships of their day they soon made a great reputation in the tea trade and this they have never lost.

The Suez Canal.

The opening of the Suez Canal in 1869 made a huge difference to the world's commerce, and marked the end of the halcyon days of sail. It avoided the long sea voyages in which coaling was a great difficulty and it reduced distances very considerably. Some six hundred years before Christ Necho had commenced to build a canal and although it was never completed 120,000 men are said to have died in the work. Darius attempted to continue it. Various other rulers tried to make a navigable canal but it was never a great success and was finally filled in by order of the Caliph on the ground that it was assisting his enemies in Arabia. In the fifteenth century the Venetians attempted to arrange

for the construction of a canal; Louis XIV had the same idea, and many Egyptian rulers repeated it before Bonaparte in his campaign in Egypt had a survey carried out. It was in 1854 that Ferdinand De Lesseps, a French Consular official, interested himself keenly in the work and although he was not supposed to be a practical engineer he soon surmounted difficulties and obtained a concession. This concession was to last 99 years from the opening of the canal, after which it was to pass into the hands of the Egyptian Government. In spite of all difficulties the Canal was finally cut and opened by the Empress Eugénie in her yacht *L'Aigle* in November, 1869. Within a year 500 ships had passed through it.

The Isthmus of Panama.

The pioneers in Central America always believed that there was a waterway between the Atlantic and the Pacific, and they spent many weary months searching for it. It was not until 1530 that they finally satisfied themselves that there was no way through and immediately plans for cutting a canal were formulated. A cousin of Cortez, one Alvaro Ceron, prepared plans for the construction of the canal, choosing practically the same route that the waterway takes to-day. Charles V of Spain encouraged the project; Paterson had the same idea in mind when he founded the Darien Colony; Nelson considered the matter when he was in Central America in 1780; and in the early days of the nineteenth century there was infinite discussion concerning the rival claims of the Panama and Nicaragua routes. The Dutch commenced work on the latter in 1829 but it did not go far. In 1846 the United States considered the matter and also favoured the Nicaraguan route, and in 1850 the famous Clayton Bulwer Treaty put the matter on a fairly satisfactory basis. However, work was not really started in earnest until De Lesseps commenced his famous but ill-fated attempt in 1881.

The Hudson River Monopoly.

It has already been recorded how Fulton and Livingstone obtained a monopoly for steamship traffic on the Hudson River, and how they maintained it against all interlopers. As soon as steamers began to come into their own, attempts were made to wreck this monopoly, but the holders contrived to keep it for years and it was not until 1824 that the U.S. Supreme Court finally decided that such a privilege was against the constitution of the United States. Immediately it was ended there was a great rush of capital into the Hudson River business and the steamers immediately began to improve in number and design. But the question remains as to whether Fulton would ever have made his effort without the encouragement of the monopoly.

The Improved Hudson River Steamers.

The old steamers on the river had burned wood in huge box boilers, but in 1830 tubular boilers were brought in by the steamer *Novelty* although it was not until 1840 that coal came into general use. Not

only had the wood burning boilers been very large, but it had been necessary to use a lot of deck space to stack the fuel. Iron construction was introduced in 1844 by the *Iron Witch*. Many of the ships had their boilers above deck right out on the paddle sponsons, or guards as they were called in America, and all were fitted with the old working-beam engine.

Racing on the Hudson River.

As the size and speed of the Hudson River steamboats grew, so racing became more and more prevalent and exciting. It also became more and more dangerous, for everything was strained for speed and boilers which should have worked at 25 pounds pressure had their safety valves made fast until the pressure rose to sixty. The result of this was that boiler explosions were very frequent, and steamer after steamer piled herself up or burnt herself while racing. Such mishaps did not check it, however, and it was many years before the practice was stopped on the Hudson River. In 1847 one of the most famous races took place between the *Oregon* and the *Cornelius Vanderbilt*. At the turning mark the *Oregon* was just ahead but on the way down her coal ran out and the *Vanderbilt* caught up with her. Her captain resorted to the heroic measure of burning all the woodwork on board, ripping up the decks and stoking the furnaces with expensive and elaborate furniture from the state rooms. The result was that she finished just four hundred yards ahead of the *Vanderbilt*, but it was a costly victory.

Racing on the Mississippi had been very severely discouraged by the authorities some years earlier, for in the late 'thirties the *Pioneer* and *Ontario* ran a famous race. Cutting a corner a collision occurred, and the captain of the *Pioneer* declared that it was deliberate on the part of the *Ontario*. Whereupon he put his helm hard over and intentionally rammed his adversary, sinking her and killing one passenger.

The Pacific Mail Line.

One of the best known of the American steamship companies is the Pacific Mail, which carried on operations with varying fortunes from 1847 until 1925. It began when the United States took over California and Oregon and a concession was granted by the U.S. Government to anybody who would start a satisfactory steamship service for an annual subvention of 199,000 dollars. This concession changed hands several times before it fell into the possession of Mr. W. H. Aspinwall, who worked in company with Mr. George Law, an experienced New York shipowner. They commenced a service from New York to Colon and then from Panama up the West Coast. Operations started just about the time of the Californian gold rush, with the result that they made a fortune when the miners were booking every available berth at any price that was asked. The association with George Law lasted until 1851 when the two owners fell out and for a time engaged in a cut-throat competition. In 1865 the Pacific Mail

commenced a service across the Pacific from San Francisco and built some of the finest ocean paddlers that have flown the Stars and Stripes. These Pacific services were very difficult to maintain for a variety of reasons and the company had to fight the keenest opposition. But it won through in the end.

The American Coasting Trade.

As may well be imagined, a keen commercial people like the New Englanders were not long in discovering that the steamboat was ideally suited to the coasting trade, and that their long shore from Maine to Florida offered it great advantages. At the outset the ships were small and crude, but in 1836 the Government's decision to subsidise a company to carry the mails down to the Southern States resulted in a magnificent fleet of specially designed steamers being built, the pioneer being the famous *Southerner*. She was an exceptionally ugly vessel, but a fine, seaworthy craft and with a far higher speed than was general in those days, with the result that it was upon her success that the long coastal trade was very largely founded.

The Anchor Line.

The Anchor Line, one of the most famous of the Scottish companies, came into existence in the early 'fifties by the efforts of four young Scotsmen who had formed the firm of Handyside and Henderson to start a steam service between Glasgow and the Continent. They found great difficulties in this, but established themselves with several fast sailing vessels in the Mediterranean fruit trade. When they had learnt this trade thoroughly they went into steam and soon had a big connection in the Mediterranean. This service was later extended to India, while in the 'sixties they established themselves on the North Atlantic as well.

The Start of the Mitsu-Bishi Line.

For a long time the civil struggle in Japan prevented very much progress being made in steam navigation in the Island Empire, but as the country became more settled and trade improved it was obvious that intercommunication between the islands could only be obtained satisfactorily by steam. Accordingly the Mitsu-Bishi Company, which then, as now, was one of the principal concerns in Japan, founded a steamship line in 1875, with purchased tonnage. It soon proved a success and produced rivals in the coasting trade; later the best of these companies were amalgamated and became the famous Nippon Yusen Kaisha Line, which has spread its activities all over the world.

The Twin Steamer "Gemini."

The first of the numerous double-hull steamers that were built during the nineteenth century was the *Gemini* of 1850, which was invented and built by Mr. Peter Borrie. He claimed that she was unsinkable, steady, fast and absolutely safe in every way. Her length was 157 feet and her beam rather more than 26. The two hulls were each 8 feet 6 inches in beam, with a paddle in the waterway between them. She was double-engined and could steam and steer in either

(*Macpherson Collection*)

THE ROYAL MAIL PACKET "BEN MY CHREE," BUILT BY NAPIER, 1845, WITH A VIEW OF DOUGLAS, ISLE OF MAN.

From a Colour Lithograph by A. Miller after a Painting by Joseph Heard, Liverpool

(*Macpherson Collection*)

THE "GREAT EASTERN" STEAMSHIP

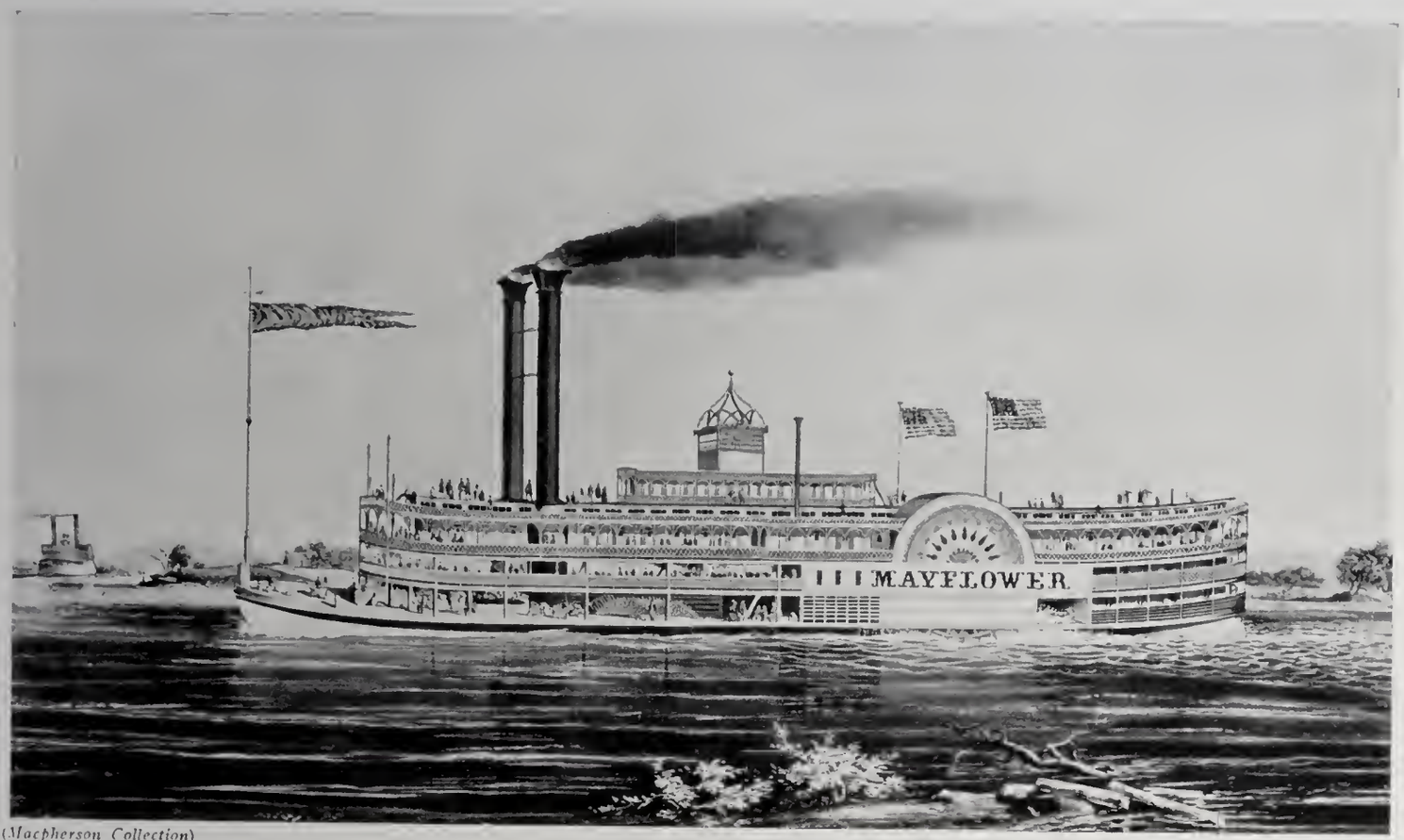
(From a Colour Lithograph by Picken after a Painting by S. Walters, Published 1857)

One of the most famous failures ever built, the Great Eastern might well have succeeded had her original owners not failed before she was completed, her purchasers putting her on to service for which she was never designed and for which she was most unsuitable.

(Macpherson Collection

THE TWIN SCREW STEAMSHIP, " FAR EAST."
(From a Colour Lithograph by Vincent Brooks after Josiah Taylor, Published 1864)

An experimental twin screw steamer launched in 1863, the only twin screw ship to be built with lifting screws. She was designed to compete with the famous clippers in the tea trade but she was a failure as regards speed



(*Macpherson Collection*)

THE HIGH PRESSURE STEAMBOAT "MAYFLOWER," FIRST CLASS PACKET BETWEEN ST. LOUIS AND NEW ORLEANS ON THE MISSISSIPPI RIVER.
(FROM A COLOUR LITHOGRAPH AFTER CH. PARSONS, PUBLISHED 1855)

In early as the 'fifties the Mississippi steamer had diverged completely from the Hudson River design and the Mayflower, which ran between St. Louis and New Orleans, is a good example of the finest ships on this route.

(*Macpherson Collection*)

A NIGHT ON THE HUDSON RIVER—"THROUGH AT DAYLIGHT."
(From a Colour Lithograph after F. E. Palmer, Published 1864)

Steamboat racing on the Hudson River was very general during the last century and some very high speeds were attained. It was, however, exceedingly dangerous and eventually had to be stopped. The American system of putting the boilers right out on the sponsons is interesting and is clearly shown in the picture.

direction. The *Gemini* herself was an experimental ship intended for river navigation, but Borrie's idea was to get his ships on the North Atlantic trade and rob it of the terror of seasickness. She was a failure from an economical point of view, as were the ships of similar design which were built 20 and 30 years later, the *Calais-Douvres* and *Castalia* for the Channel crossing, and other similar vessels.

The Voyage of the "Argo."

One of the most famous ships of the General Screw Company was the *Argo*, which in 1854 drew attention to herself as the first commercial steamer to circumnavigate the globe. She ran out to Australia by way of the Cape of Good Hope in 64 days, and instead of returning by the same route she followed the old sailing ship path and sailed back by Cape Horn, doing the passage in the same time within a few hours.

Navigation of the Yangtse Kiang.

Lord Elgin's admission in 1858 had done much to open up the Yangtse Kiang, but it was not until 1860 that the first foreign merchant ship was allowed to trade there. She was the steamer *Scotland*, which belonged to W. S. Lindsay, the nautical historian, and was commanded by Captain A. D. Dundas, R.N. She brought down tea from Hankow and was soon afterwards followed by two light-draught steamers that were very much more useful for the purpose, one an American and the other a Russian steamer which had been built for service on the Amur. Within a matter of months there was quite a big foreign steamship trade on the river, the Germans surprising the shipping world by being among the first to take advantage of it.

The Steamship in Japan.

When Lord Elgin made his commercial treaty with Japan in 1858, he presented a steamer, the *Emperor*, from Queen Victoria to the Mikado. Three years later, in 1861, the Prince of the Satsuma, a clan which regarded itself as the monopolists of naval affairs in Japan, purchased two steamers for trading purposes. They were named the *England* and the *Scotland*, and had a gross tonnage of round about 1,100. Not unnaturally, the handling of native mechanics caused a good deal of boiler trouble, but the wonderful ingenuity of the people was shown by the way they gave the *England* new copper boilers within 12 months of her arrival. She was sunk by the British after the bombardment of Kagosima in 1863. One widely accepted explanation of the word Maru, which follows the name of every Japanese merchant ship, is based on one of its many meanings, "round." The story is that when the Japanese received their first steamer, they were quite confident that they could run her, but unfortunately they were not sure about stopping her engines. So they just raced her round and round Yokohama Harbour until the steam gave out, and they then towed her to her berth in triumph. There are other explanations of the word, and it is a matter of constant discussion.

The "Bessemer."

Probably the most extraordinary vessel ever constructed was built in 1875 to the combined designs of Mr. E. J. Reed, the chief constructor of the Royal Navy, and Mr. Bessemer, the steel inventor. Her principal feature was that she had a saloon amidships that was designed to remain on a level keel no matter how much the hull outside it rolled and pitched. Unfortunately the result was that the hull took one motion and the swinging saloon another, giving the passengers inside a terrible time. She was also fitted with two sets of paddles, but the obvious result of this was that the after pair worked through water that was already moving fast from the forward pair, and were quite useless. To save weight she was given low freeboard forward, but this only collected a colossal weight of water. The result was that she was slow, uncomfortable and practically uncontrollable, and consequently her life on the Channel ferry was short and inglorious. Her famous swinging saloon, however, is still in existence as the dining-room of an English country house.

CHAPTER VII—POLICING THE SEAS

The Last Days of Piracy.

The nineteenth century saw the last days of piracy on a big scale, although it is still to be found in certain parts of the world and probably will be till the end of time. As has been shown in earlier chapters, the old-time pirate was very often quite a decent fellow who had been forced out of the merchant service by the appalling conditions obtaining therein, and had turned to piracy as a means of existence and nothing more. In the early days of the nineteenth century, however, the pirate was at his very worst, for the horde of adventurers of all sorts who had taken service in the navies of the various South American States against the domination of Spain found that they had nothing to do when the work of liberation was done, with the result that they simply took to piracy. Those were the days of real savagery, and if there really is an authentic instance of a victim being made to walk the plank it was certainly in those days.

Nurse of the "Eliza."

In order to put down piracy in the West Indies, the British Squadron there commissioned a number of small tenders, one of these being a sloop named the *Eliza*, which carried a single 12-pounder carronade. Lying off the north coast of Cuba one day in 1822, under the command of Mate Hugh Nurse, R.N., she was attacked by a pirate schooner *Diableto*, 6 guns, and her consort, the felucca *Firme Union* of 5 guns. With his single piece Nurse put up such a gallant defence that he contrived to capture the felucca, but the schooner managed to escape. This action brought him promotion and he died a post-captain.

The Americans in the West Indies.

All through the 'twenties the American Navy made determined efforts to suppress piracy in the West Indies, and attained excellent results in most difficult circumstances. The Spaniards openly encouraged the pirates and gave them the use of their ports, while Columbia and many of the newly-born republics gave them the protection of their privateer commissions for a small cash consideration. Unable to get their pay, the seamen of the Spanish Colonial Navy frequently went a-pirating themselves, the most celebrated case of this being the cruiser *Federal*, which was cut out by the boats of the U.S. sloop *Erie* in West Indian waters in 1828 after having made a practice of looting American ships at sea. In this action Josiah Tatnall, who will always be remembered for the " Blood is thicker than Water " incident, was first lieutenant, and although it caused a good deal of diplomatic bother at the time it gave the Spaniards a respect for the American flag that they had never had before. It was a long time, however, before the pirates were robbed of all official help.

Tatnall and the Mexicans.

Josiah Tatnall was also concerned in several exciting incidents with the Mexicans. In August, 1842, the Mexican naval schooner *Montezuma* boarded an American merchantman at sea, maltreated the crew and seized certain goods, this being nothing but piracy. The U.S.S. *Grampus* under Tatnall gave chase and captured her within range of the forts at Tampico. Tatnall acted entirely on his own responsibility and knew the trouble that would be his if he were disallowed. A few weeks later he sailed boldly into Tampico and rescued an American schooner which the Mexicans had illegally detained, obviously awaiting some excuse to seize the 200,000 dollars in specie which she had on board at the time.

The Mochan Pirates.

In practically all the eastern lands piracy was regarded as quite an honourable profession, and it became the business of the British Navy to rout out settlement after settlement. In 1820 H.M.S. *Topaze*, with several ships belonging to the East India Company, tackled the pirates whose headquarters were at Mocha. A landing party was very severely handled by the pirates, so it became necessary to bombard their fort and reduce the whole place. Several other pirate centres were treated in like fashion before the lesson was learned.

Benito de Soto and the " Black Joke."

Most of the nineteenth century pirates confined their operations to the West, but a Portuguese named Benito de Soto was the exception and operated in the Eastern Atlantic. He was one of the worst of the latter-day pirates, having learnt his craft in the particularly bloodthirsty wars of liberation in South America and continued his lessons in the Portuguese slaving business. He is best remembered by the case of the barque *Morning Star* in 1832. She was owned by a Quaker named

Tindall, who objected to arming his ships as being against his principles, with the result that she was carrying passengers and invalided soldiers without the least chance of protecting herself. On this occasion she was in company with the well-armed Indiaman *Susan* off Ascension when De Soto appeared in the *Black Joke* and demanded her surrender, reinforcing his demands with a round of grape. He then demanded that the Captain of the *Morning Star*, Captain Souley, should come aboard with the ship's papers, but a passenger took his place. He was sent back with a peremptory demand for the Captain himself and as he stepped on board the pirate cut him down with his own hand. After that there followed one of the worst cases of piracy on record. The women passengers were appallingly treated, practically all the men had their throats cut and the ship was looted. De Soto then battened down the survivors and scuttled the ship, but luckily there was one stewardess left in the cabin and she took the first opportunity of releasing the crew, who succeeded in getting the ship into port. After that Tindall's ships were always more heavily armed than any other merchantmen. De Soto was later very properly hanged by the British authorities at Gibraltar.

Bernardo de Soto.

Soon after Benito de Soto was making an evil reputation for himself in the Eastern Atlantic, Bernardo de Soto appeared in the West Indies. It is very difficult to form any just estimate of the character of this man, for in 1830 he rescued the crew and passengers of the ship *Minerva* wrecked on the Bahama banks and displayed the greatest possible gallantry. Yet in 1832 the Salem brig *Mexican*, in ballast but carrying a large sum for the purpose of trade, fell in with De Soto in command of the schooner *Panda*. The luckless *Mexican* was stripped of everything of value, and after the crew had been brutally maltreated they were driven below and battened down, while the pirates destroyed the ship's sails and then set her on fire. De Soto's orders apparently were to kill everybody on board and when the crew of the *Mexican* contrived to release themselves they dared not extinguish the fire too quickly for fear of attracting the pirates' attention and bringing them back to complete their work. As it was they were seen getting the ship under way, but by that time the pirate schooner was so far away that she was unable to catch up with them before they reached safety. Practically the whole of the pirate crew were captured two years afterwards, but De Soto was pardoned on the strength of his gallantry in the case of the *Minerva*, a very ill-judged mercy.

The Cocos Island Treasure.

One of the worst pirates in the early nineteenth century was a British seaman named Bennet Graham, who preferred to call himself Benito Bonita and operated in the Pacific. The ships to be attacked there were comparatively few in number, but there were churches in plenty, with the result that when he found that it was high time that he changed his hunting ground, the spoil that he had with him was not of a description

H.M. 10-GUN BRIG "ACORN," Capt. JOHN ADAMS, IN CHASE OF THE PIRATICAL SLAVER "GABRIEL," JULY, 1841.

From a Colour Lithograph by T. G. Dutton after N. M. Condy

(Lent by Messrs. T. H. Parker)

that could be easily realised. Accordingly, he buried it on Cocos Island in the Pacific—not to be confused with that Cocos Keeling Island on which the *Emden* was destroyed—and in true pirate fashion is reported to have slain the men who helped him bury it and to have left their bodies to guard his treasure. He then set sail for the Caribbean, but before he reached there he put in at several South American ports and at every one he had a number of his men desert, so that finally he met H.M.S. *Magicienne* very short-handed and was in no condition to put up a fight. So Bennet Graham got his deserts at the yardarm.

One of the men who deserted him on the way up the South American coast was William Thompson, generally reported as his gunner, who had command of the brig *Mary Read* in 1821 on the Peruvian coast. There is little doubt that he went there to attempt to salve his leader's treasure, but, as luck would have it, he was at Callao when the Chilians allowed the Spanish population to evacuate the town with their treasure. The *Mary Read* was chartered by a Spanish family, who placed on board a huge value and then heard rumours of Thompson's real character. The result was that they decided to travel with their property, and by so doing sealed their own fate. Their throats were cut and their bodies were pitched overboard : ten million dollars is the sum reported to have been gained by the pirates by this murder. Thompson's share of this treasure, which was certainly a very considerable one, was buried on Cocos Island beside that of his chief.

The Search for the Treasure.

This Cocos Island treasure has been the subject of innumerable searches ever since, and there is no indication that the craze is dying out. Naturally, Thompson hoped to get the treasure himself, but circumstances were against him. The naval authorities were already on his track for proved piracies, while the incident of Callao was noised abroad when Lord Cochrane came home. It was not till he was a very old man that he was able to fit out an expedition, and then only by admitting another man into his confidence. They chartered a schooner and reached the island, finding the treasure with little difficulty. Thompson and his partner, Doig, discussed the matter and decided that, if they took the treasure on board, they would probably be murdered for it, so they contented themselves with a few trinkets and left the island to fit out another expedition with greater care. Thompson died before this could sail, but Doig took his son with him and reached the island, only to find that the place where the treasure had been hidden was by then completely covered by a landslide that followed an earthquake. The elder Doig was drowned and his son never contrived to reach the treasure, although he left explicit instructions and a fabled map which has grown into many hundreds in response to the demand. Since those days, treasure hunts have gone out in scores, some of the hunters arriving in open boats, while the most famous one was when the British admiral in command of the Pacific station took his flagship and landed half his ship's company. Engineers have assisted nature, with the result

that it is now practically impossible to find the position of the treasure, and apparently quite impossible to find the treasure when it is located.

Cayatano Aragonez.

One of the worst of the West Indian pirates at this time was Cayatano Aragonez who commanded the schooner *Zaragozana* in the early 'twenties. She was a 120-ton boat famous for her speed and armed with one 18-pounder, four 9-pounders and eight small guns, so that with her bloodthirsty crew she was a particularly dangerous antagonist. Aragonez had a special bitterness against the British, for several of his men had been caught and hanged at Jamaica, with the result that the rest swore that they would never show mercy to an Englishman. They then discovered that their negro cook hailed from Jamaica and tortured him for hours before they finally murdered him. In March, 1823, the British sloops *Tyne* and *Thracian* set out specially to catch the *Zaragozana*. They were sighted before they could come within range and she took refuge in the harbour of Mata. Moored head and stern with her broadside covering the entrance and with parties of seamen ashore in the narrows she thought that she was safe, but the boats of the two ships attacked most gallantly and in the end Aragonez and twenty-seven of his men were hanged, while most of the others were shot or drowned.

A Steam Pirate.

A ship with a remarkably checkered career was the *Marques de la Habana*, which was fitted out in Cuba as a slaver at the beginning of 1860. The original plan seems to have fallen through and she was chartered by a party of Mexican revolutionists who wished to be landed at Vera Cruz. The attempt was a failure and accordingly they sailed in the *Marques de la Habana* with the idea of pirating one of the gold ships coming home from California. The U.S.S. *Saratoga* was too smart for the attempt to be carried into effect, and eventually the ship ended her days in the Confederate Navy as the *McRae*.

Greek Pirates.

From the very earliest days of history the Greeks have taken kindly to piracy and in the period of disorder which coincided with their war against the Turks the old spirit reappeared. The Greek islands are ideal for the freebooters' purpose and it was a long time before the numerous British warships combing through them were able to make any appreciable difference to the situation, although finally they got it well in hand. Their great stronghold was the Island of Grabusa which nature has made everything that a pirate could desire, but finally Commodore Staines, R.N., contrived to turn them out of it in 1828.

The Abolition of the Slave Trade.

By an Act of Parliament passed in March, 1807, slave dealing by British subjects was to be made illegal from the following January, and three years later it was provided that offenders should be punished by

transportation for thirty years. This did not put an end to the trouble, so that in 1824 it was regarded as piracy and rewarded with the gallows, a punishment that was altered to transportation for life in 1837. Spain and Portugal had agreed to abandon the slave trade North of the Equator in 1814. Two years later France declared against it altogether and finally the Iberian nations fell into line. Even Brazil, which was maintained by slave labour for many years afterwards, agreed not to transport slaves. In 1823 it was enacted that slaves in all British colonies were free, compensation being paid to the owners. The British and American navies were very keen in the pursuit of slavers, basing their action on sundry treaties which gave them the right to police the seas in this way.

The Cruise of the " Black Joke."

In 1829 H.M.S. *Sybille* on the West Coast of Africa commissioned the tender *Black Joke*, mounting one long 18-pounder, under Lieutenant Henry Downes with 34 men. She had been built for a sinister purpose herself and was particularly successful, capturing no less than twenty-one slavers in all and liberating over 7,000 slaves. To show what heavy metal she had to compete with, it may be mentioned that her prizes included the 14-gun Spanish brig *Providencia*, the 8-gun Brazilian brig *Vengador*, the 7-gun Buenos Ayrean privateer *Presidente* with her two prizes, and the 14-gun Spanish brig *Almirante*. The armament of the last-named, for instance, consisted of ten 18-pounders and four long 9's, while she had 80 men against the 34 in the *Black Joke*. Such odds would appear impossible to a ship mounting a single 18-pounder, but she chased her quarry for eleven hours and fought for an hour and twenty minutes.

The American Slavers.

Although the two parts of the United States went to war on the slavery question it is a curious fact that the majority of the American slavers came from the North. Perhaps one of the worst of these was Captain Nathaniel Gordon who hailed from Portland, Maine, and who had a shocking reputation as a slaver. His ship was the *Erie*, a full-rigged ship of under 500 tons. Into this ship he crowded a thousand negroes in the most appalling conditions. Twice he ran through safely to Cuba, the third time he had to land on the Brazilian coast and on the fourth occasion the United States ship *Mohican* boarded him and found 967 negroes on board. Three hundred of these died on the way to Monrovia. The U.S. Government was very doubtful as to his prosecution as the evidence on which they had to depend could have been torn into shreds by a clever lawyer, but Gordon was under the impression that he was far keener than any lawyer and got the trial postponed on a legal quibble. The result was that before it came off four seamen from the *Erie* were brought home to give evidence against him and in spite of his efforts to raise a riot in the streets of New York

he was duly hanged in February, 1862, the only person ever executed in the United States for the crime of slave smuggling.

Smuggling after the Peace.

The final peace which concluded the Napoleonic War made a huge difference to smuggling, for until then the authorities had so few men at their disposal that the smugglers were able to do very much as they liked. When the forces came to be disbanded there were some men who had such a strong claim on the Government that they could not be fobbed off with a beggar's licence or anything of that sort, and they were therefore employed in running down the smugglers. The finances of the country were in a very serious condition, which was another reason for tightening up the Customs guard. The first move in the campaign for efficiency was to take the revenue cruisers out of the hands of the Board of Customs and put them under the Admiralty, a move which was ordered on April 5th, 1816. Although the British Navy was cut down to its lowest ebb, there were still a number of ships in commission, and these were ordered to co-operate with the cutters. The Admiralty, however, would not go further than to make an effort at an efficient service ; the bills still went to the Customs Office. The Navy took over some fine floating material and added to it some of their own craft, so that the cruisers were divided into three classes—the first class of over 140 tons, the second class between 100 and 140, and the third class of less than 100. Pay and victualling were put on a proper scale and a system of discipline introduced which soon left its mark.

The Coast Blockade.

By July, 1817, it was seen that more than ordinary measures were required to cope with the smugglers, and accordingly the territory between the North Foreland and the South was handed over to the coast blockade. This was first put in the charge of H.M.S. *Severn*, under Captain M'Culloch, who had already had considerable experience in the suppression of smuggling. His ship was well provided with boats, and a large part of his crew was landed at different points along the coast just before dusk to co-operate with their brothers off shore until the morning. This method was found to be successful, and in the latter part of 1818 it was extended from Shellness at the corner of the Isle of Sheppey to Cuckmere, just beyond Beachy Head. In 1821 this coast blockade was divided into three divisions and twelve districts, commanded by naval officers and manned by parties of reliable seamen. These seamen erected guard-houses, and finally entirely replaced the old land guard. This put an effective check on smuggling so far as one stretch of the coast was concerned, but the others had to be covered by the cutters, and very expensive work it proved.

The Patrol of the Coast.

The experiment of the coast blockade had proved so successful that in 1819 a somewhat similar organisation was established all round the coast. A number of stations were established, each consisting of a chief

(*Macpherson Collection*)

A TRINITY HOUSE SCHOONER.
(Oil Painting, Artist Unknown)

The Trinity House pilot and light schooners were second only to the Navy in smartness and were wonderful little vessels.

(*Macpherson Collection*)

THE "JOLLY BATCHELOR" BEATING OFF TWO PIRATICAL PROAS AT DATTO POINT, BORNEO, MAY 21, 1843.
(From a Colour Lithograph after Lieut. James Hunt, Commanding the "Jolly Batchelor.")

The fearless and well-armed Malay pirates were a very serious menace to shipping until Rajah Brooke and the British Navy gave them some salutary lessons.

(*Macpherson Collection*)

H.M. BRIGANTINE "BUZZARD" CAPTURING THE SPANISH SLAVE BRIG "FORMIDABLE" ON THE COAST OF AFRICA, DECEMBER 17, 1834.
(From a Colour Aquatint by E. Duncan after W. J. Huggins)

Only occasionally did the slavers, who generally sailed under the Spanish, Portuguese or French colours, attempt to put up an armed resistance, but as a rule they were built expressly for speed.

(*Macpherson Collection*)

SMUGGLERS SURPRISED BY REVENUE MEN.
(From a Colour Aquatint, Artist Unknown)

From the end of the Napoleonic Wars until the late 'thirties the authorities had to take strong measures against the smugglers, especially in Kent and Sussex, and fights between the two were not infrequent.

officer and seven hands, in charge of a sea boat pulling six oars and rigged as a three-masted lugger. They were expected to pull along their coast line practically every night, as well as to keep a watch on shore, and to keep in closest touch with the cruisers further out. They had the right to stop and search any ship that appeared in any way to be suspicious, and to pursue any shore boat which they had any reason to believe was engaged in smuggling.

Ingenuity for Force.

These measures soon taught the smugglers to employ ingenuity instead of force, and, instead of running big cargoes close inshore and relying on their numbers to beat off any opposition the usual practice was for the smugglers to come as close inshore as they dared, drop their cargo in specially prepared cases and bags anchored to the bottom, and leave it to their friends on shore to come out at the first opportunity and recover them by dragging. So the authorities also did some dragging on their own account, and paid the men a reward for everything that was brought up out of the sea. Many ships engaged in lawful trade were specially built to carry considerable quantities of contraband in cunningly concealed hiding places. False bows, false keelsons and false bulkheads were quite common, and so cleverly arranged that they required a deal of finding. Pigs of iron ballast were cast hollow and filled with liquor.

The System of Rewards.

Until 1821 the system of rewards was a little vague, but in the spring of that year it was made definite, and there was further increase of efficiency when this temptation to corruption was removed. In 1822 the whole of the preventive organisation was put under the control of the Customs Board again, being under the command of the Controller-General of the Coastguard. The Coast Blockade already mentioned was exempted from this order. Although the administration was back in the old hands, the entire water personnel was now naval. Then in 1831 the Coastguard was founded properly, not only to take over the Coast Blockade but also the preventive organisation, and to constitute the first reserve of the Navy. The first steam tender came into the service in 1839, and the efficiency of the coastguards steadily increased. Gradually the number of cruisers afloat was cut down and the coast-guard service ashore increased, until the Crimean War proved their national value. They were then the only real reserve that the Navy possessed and had to be relied upon almost entirely for manning the numerous ships commissioned. Political considerations prevented the use of the Press Gang, which was still legal. After the peace with Russia the Customs Board pointed out that they had to pay for the coast-guard, but that it was the Admiralty that received the great benefit, so that in 1876 it was again passed back to the control of the Navy, to remain there until 1923, when precisely the same arguments were used to pass it back to the Customs and Board of Trade.

The Decline of Smuggling.

All the measures that the authorities were taking to checkmate the smugglers had far less real effect in bringing about the decline of smuggling than the fact that it was rapidly ceasing to be worth while. Trade was no longer checked by vexatious export duties, and the authorities did all that they could to foster the purchase of British wool abroad instead of checking it. At the same time, as the financial position of the country improved after the Napoleonic war, the aim of the authorities was to cheapen living in England, and for this purpose it was obvious that import taxes had to be reduced. So the smuggler not only found that his business was more difficult, but that there was no profit in it at the end, and it rapidly declined as a regular business. There were, of course, many instances of a few cigars or a little spirits being run in by fishermen and others, and even isolated cases of smuggling on a bigger scale in the North of Scotland, but the romantic period of smuggling ended definitely in the 'forties.

CHAPTER VIII—NINETEENTH-CENTURY EXPLORATION

The 1818 Expeditions.

Prompted by optimistic reports brought home by William Scoresby, the whaler, the Admiralty sent out two expeditions in 1818, the one to examine the seas around Spitzbergen and the other to investigate Davis Strait. All the work was done in whalers, which had proved themselves the most suitable vessels for this type of exploration. Accordingly the *Dorothea* and *Brent* were chartered for the Spitzbergen expedition under Commander David Buchan, the latter being commanded by Lieutenant John Franklin, who was afterwards to make such a name for himself in Arctic exploration. For Davis Strait the *Isabella* and *Alexander* were chartered and put under Captain John Ross, with a nephew of his, James Clark Ross, as a midshipman. The *Alexander* was commanded by Lieutenant William Edward Parry, so that in this expedition may be said to have been sown the seed which led to all the great Arctic expeditions for years afterwards. The expedition to Spitzbergen was early thwarted by the ice, but the Davis Strait party was very much more lucky. Baffin's Bay had long been reported, but many people doubted its existence, so that the action of the *Isabella* and *Alexander* in sailing right round it put all doubts at rest. More important in commercial circles was the fact that Ross opened the way for the whaling industry which settled itself in Baffin's Bay for many years afterwards. He also did valuable oceanographical work, but some of the theories that he formed were proved to be erroneous.

Parry's Expedition.

His second-in-command, Lieutenant Parry, disagreed so strongly with Ross that in 1819 he was himself given command of an expedition, consisting of the bomb ketch *Hecla* and the gun brig *Griper*, to sub-

stantiate his theories. One of these was that Lancaster Sound was a wide strait and not a bay, as Ross had believed. Favoured by the weather and his own judgment, he made a remarkable passage and went into winter quarters off Melville Island. It is worth noting that he had his crews perfectly well in hand through the whole of this tedious winter, whereas Ross's men were always on the verge of mutiny. In this he differed from his celebrated nephew, who was an exceedingly popular man. Parry's expedition returned in safety in the following autumn and attracted tremendous attention.

Parry's Second Voyage.

Parry's second voyage, which was made with the *Hecla* and the *Fury*, of very similar type, was commenced in 1821 and returned in 1823. His object was to explore the region to the North of Hudson's Bay. He succeeded in his object and greatly increased the geographical and scientific knowledge of the northern coast of America.

The 1824 Expedition.

These expeditions had aroused so much interest in the country that in 1824 a combined effort was determined upon, with Parry in chief command. He took the *Hecla* and *Fury*, and the officers who went with him were the great men in the history of Arctic navigation. There was Henry Foster, James Clark Ross, Bird and Crozier, while in command of the *Blossom* was Commander Frederick William Beechey, who had already done very fine work. His business was to carry out numerous explorations in the Pacific and to meet Parry at the end of Bering Strait. Soon afterwards Franklin, who had just returned from a most trying voyage in the Arctic, was sent out to co-operate. Everything was against Parry. The worst winter that had been known wrecked the *Fury* and forced the party to return in the *Hecla*. Beechey got as far north as Cape Barrow, while Franklin did exceedingly valuable work in the North Pacific.

Parry's Third Voyage.

Meanwhile, Parry had been knighted and was now Sir Edward Parry and Hydrographer of the Admiralty, although it is difficult to see how he carried out his official duties when he was always away. However, the Admiralty were sufficiently pleased with his work to give him repeated leave of absence, and accordingly his third expedition, undertaken in 1827, was launched with the idea of reaching the Pole from Spitzbergen by means of hybrid boat-sledges. He again took the *Hecla*, and had with him Foster, Crozier, Ross and Bird, the first-named being left in charge of the ships on the north coast of Spitzbergen. Eventually the sledge party reached a point 82° 45′ north, where they were checked by the ice drifting southwards as fast as they advanced. This remained the farthest north for many years afterwards.

John Ross.

The Admiralty had not been inclined to employ John Ross again, since he had persisted so strongly and tactlessly that Lancaster Sound

was a bay and could not be proved a waterway by any means. However, he persuaded a private party to fit out a small steamer called the *Victory*, and in her he sailed to Baffin's Bay in 1829. His nephew went with him, and they were successful in discovering a long coast line which was named Boothia Felix, after Sir Felix Booth, the gin distiller, who was his patron. The *Victory* was caught by the ice in Felix Harbour, and there she remained, while James Clark Ross, in one of his numerous land journeys, discovered the magnetic pole. The party finally abandoned the ship and found the provisions which had been left by the *Fury* when she was wrecked in 1825, finally being picked up by whalers in Barrow's Strait in the last stages of exhaustion.

Captain George Back.

The next expedition sailed under Captain George Back, who had already carried out a voyage in search of Ross, the object of which was to reach Repulse Bay by the sea. He took out H.M.S. *Terror* in 1836, and with a magnificent crew he did his best. However, his ship was so badly damaged by the ice that she very nearly foundered coming home across the Atlantic, and only reached Lough Swilly in time to be beached in a sinking condition.

Sir Francis Beaufort.

It was generally the men who went on the expeditions themselves who got all the credit, but so much credit is due to Sir Francis Beaufort for the work that he put in while he was Hydrographer from 1829 to 1855 that it is most unfair to omit mention of him. Not only was he an exceedingly clever man himself, but he was endowed with both tact and patience, so that in the end he was enabled to overcome all the arguments which were brought up by interested parties to hamper anything that savoured of progress. He was greatly assisted by being on the Council of the Royal Geographical Society, which brought just the right pressure to bear on the authorities when he needed it most in the furtherance of his plans.

James Clark Ross.

In 1828 it was decided to send another expedition into the Antarctic, and James Clark Ross was appointed. Crozier was his second-in-command, and practically all his officers were well known for polar work. The bomb ketches *Erebus* and *Terror* were given him, and by his vision and extraordinary courage he forced his ships through the polar packs and reached open water and land. He also discovered a sheer cliff of ice 200 feet high extending for many hundreds of miles—the Great Ice Barrier. Next year he forced his way through again, in spite of severe damage to his ship, and examined the Ice Barrier more carefully. In 1843 he surveyed the South Shetlands and finally brought his ships home to receive a well deserved knighthood.

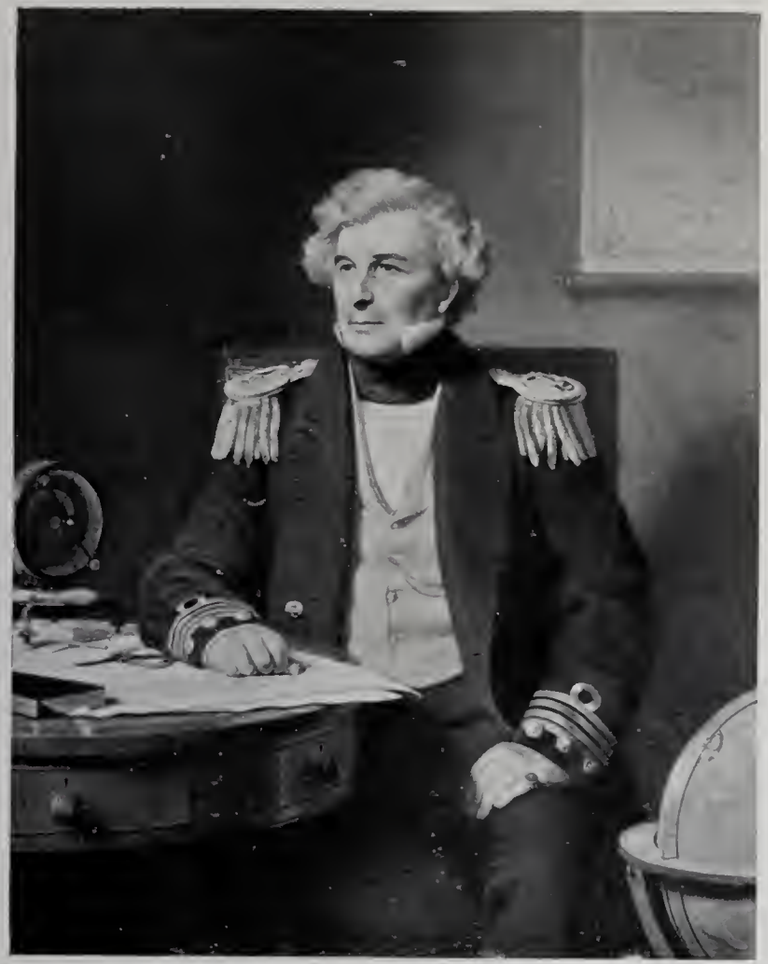
Sir John Franklin.

When James Clark Ross returned from the Antarctic the question of the North-West Passage was revived, and it was suggested to recom-

H.M.S. "ASSISTANCE" AND "PIONEER" IN WINTER QUARTERS, JANUARY, 1853.
The moon is up, the sun below the horizon. The shadows are cast from the moon.

PERILOUS POSITION OF SHIPS IN DISASTER BAY, 12 OCTOBER, 1853.
(From Lithographs after Sketches by Commander W. W. May)
(Lent by Messrs. T. H. Parker)

Both illustrations represent incidents in one of the expeditions sent in search of Sir John Franklin.



(*Macpherson Collection*)

ADMIRAL SIR JAMES CLARK ROSS (1800—1862)
(From a Proof Mezzotint)

REAR-ADMIRAL SIR WILLIAM EDWARD PARRY (1790—1855)
(From a Proof Mezzotint)

In addition to his high fame as an explorer Sir James Clark Ross had the reputation of being the best-looking man in the Navy of his day. Rear-Admiral Parry wrote vivid accounts of his Arctic voyages, most of which were phenomenally successful, and also a number of religious books.

(*Macpherson Collection*)

WHALE FISHING—HARPOONING A RIGHT WHALE
(From an Aquatint, 22 x 31¼ in., by Jazet after Garnerey)

The whalers deserve a high place in the records of Polar exploration, in addition to their reputation as magnificent seamen, although their ships were generally veritable hells afloat.

(*Macpherson Collection*)

THE NORTHERN WHALE FISHERY—THE "HARMONY" OF HULL.
(From a Colour Aquatint by E. Duncan after W. J. Huggins)

The old-time whaling ships had to be built of extraordinary strength to withstand the strains which were frequently put upon them by the ice.

mission the *Erebus* and *Terror* and to put them under the command of Commander James Fitzjames. At the last minute Sir John Franklin, who was sixty years of age and really very much too old for the job, put in a claim and it was felt that he could not be disregarded on account of his former work. With a magnificent following the expedition sailed in May, 1845. Tempted by open water, he took a channel which brought him to a dead end against the ice, but he withdrew his ships in safety and got them into winter quarters. Afterwards they met difficulty after difficulty, and finally Sir John Franklin died on June 11th, 1847. Crozier then took command, but he also was much too old for the work, while Fitzjames had to be content with the subordinate position of captain of the *Erebus*. By then they were very short of stores, but they had to face a third winter, during which they suffered terribly. The preserved meats that had been supplied to the Admiralty by a contractor named Goldner were mostly unfit for human consumption (although one of the tins was found to be perfectly good in 1926), and by the spring of 1848, with their provisions very nearly at an end, it became necessary to abandon the ships and to embark on a march for which they had not the physical strength. An account of what had happened was left in a cairn near Cape Victory, and one by one the men died. The last survivors reached Montreal Island, near the mouth of the Great Fish River, and perished there.

The Search for Franklin.

For a long time nobody had any anxiety as to the fate of Franklin except Dr. King, who had very considerable Arctic experience himself, and who in the winter of 1847 urged the Government to send supplies to Montreal Island. By the irony of fate this was the land that the survivors reached, but the authorities would not listen to him until 1848, when they fitted out the *Enterprise* under Sir James Clark Ross, and the *Investigator* under Captain Edward Bird. Among their officers were Robert McClure and Francis M'Clintock, who were both to become famous later. But the weather was against them, and although Ross and M'Clintock made a long sledge journey, they failed to find anything and returned home. As soon as they got to England, the *Investigator* and *Enterprise* were commissioned again, under the command of McClure and Captain Richard Collinson. They were ordered to proceed by way of Bering Strait. The *Enterprise* was too late and the *Investigator* pushed on most gallantly, but was caught in the ice and was held there from 1850 to 1854. Finally, McClure determined to reach the American coast, but just as his party was about to set out, they were found by the *Resolute* and *Intrepid* which had been sent out by the Admiralty under Sir Edward Belcher. Their success was in no way due to the Commander-in-Chief, who hampered his subordinates, including M'Clintock and Sherard Osborn, shamefully. This was not the only expedition that had gone out in the intervening years, both regular naval and whaling ships having been chartered for the purpose.

McClure was rescued from the eastward, so that he had performed the feat of traversing the North-West Passage. Even then their troubles were not over, for Belcher proposed to abandon all his ships without making any proper effort to extricate them, with the result that, in a subsequent court-martial, Kellett was strongly complimented and Belcher's sword was returned to him in significant silence. The experience that these surveyors had obtained in the course of their travels was of the very utmost use to the Navy during the Crimean War.

African Surveys.

During this period popular attention was focussed upon the Arctic explorers, but some very useful work was done on the African coast. H.M.S. *Leven* was commissioned under Captain William Owen to survey the African coast with the *Barracouta* as tender. This work, especially that carried out in the rivers in boats, was of the most dangerous description and men died of disease and fever like flies. They stuck to their work, however, and they made most valuable surveys, beginning in 1822 and carrying on for about eight years. Meanwhile, Commander Hugh Clapperton, who had entered the Navy by the unromantic path of the Press Gang, had done some exceedingly valuable exploration inland in Africa, accompanied by Richard Lander. Later the Navy helped this work with an expedition up the Niger, under Lieutenant William Allen. Out of 47 men only 9 came back. A second expedition was sent out, and for the third Messrs. Lairds of Birkenhead built the three little steamers *Albert, Wilberforce* and *Soudan*. Once again fever took its toll.

The Survey of the South American Coast.

Another job tackled by the British Navy in 1825, was the survey of the Straits of Magellan and the Gulf of Trinidad. Captain Philip Parker King was in command of H.M.S. *Adventure* with the *Beagle* as tender. Lieutenant William Skyring, whose name is perpetuated on the charts of these waters, was a very valuable assistant, although he was very badly treated and relieved of his temporary command by the admiral of the station, in favour of his flag lieutenant, Robert Fitz-Roy. It was a most unpleasant way of doing things, but the Navy gained by the services of a particularly brilliant and keen surveyor. FitzRoy continued in command of the *Beagle*, although he was heavily out of pocket by it, and in his second voyage, which started in 1831, he was accompanied by Charles Darwin, who has left an account of it. Skyring was unfortunately murdered by natives on the West Coast of Africa, but FitzRoy carried on the work and the modern system of meteorological forecasts is practically entirely his work.

Belcher.

Although Captain Edward Belcher cannot be described as an ideal naval officer as he always had his men on the verge of mutiny, he certainly did some exceedingly useful exploratory work. This was mostly

in the East and on the coast of Borneo, and had he got the best out of his men he would have done very much more.

American Exploration.

The United States Government had neither the money nor the inclination to spend such large sums on exploration work as the British Navy, but they did some exceedingly useful work. Lieutenant Charles Wilkes, in the *Vincennes*, with the *Peacock, Porpoise, Relief*, the steamer *Seagull* and the tender *Flying Fish*, in company, sailed in 1828 on a long expedition through the South Pacific, an expedition which provided a great deal of information and covered a huge area, including the South Atlantic and a good deal of the Antarctic Sea.

Grinnell's Arctic Expedition.

In May, 1850, an expedition fitted out by Henry Grinnell, of New York, sailed in search of Sir John Franklin. The specially prepared brigs *Rescue* and *Advance* carried the party. This party encountered great difficulties, but eventually both ships arrived safely home at New York after having added appreciably to Arctic knowledge.

CHAPTER IX—PLEASURE SAILING

The Growth of the Royal Yacht Squadron.

The foundation of the Royal Yacht Squadron has already been recorded (Volume 3, page 227), but it was not until 1817 that it received its first great fillip. The captain of the Royal Yacht *Royal George*, in which the Prince Regent was cruising off Brighton, wrote to the secretary of the club :—" The Prince Regent desires to be a member of the Yacht Club, and you are to consider this an official notification of His Royal Highness's desire." Needless to say, there was no trouble over the election, and in 1818 the Duke of Clarence and the Duke of Gloucester obtained membership. With this royal backing the qualification for membership of the club was raised to the bona fide ownership of a yacht not under 20 tons, which was quite a stiff qualification in those days. In 1820 George IV graciously suggested that the club should be called the Royal Yacht Club, instead of simply The Yacht Club, as it had begun. As yachting became more popular and yachts became bigger, the entrance fee and subscription to the club were increased, as was also the qualification for membership. In 1826, 30 tons was the minimum qualification, and about the same time foreign maritime powers began to show every courtesy to members of the club, many placing them on the same footing as men-of-war and allowing them to enter their ports free of dues. In 1829 the club took to the White Ensign by special Admiralty permission.

William IV and the Royal Yacht Squadron.

Ever since his election in 1818, William IV had shown himself very keenly interested in the progress of the Royal Yacht Club and in 1833 he caused Lord Belfast to write the following letter to the secretary:—"Sir, I have it in command from His Majesty to acquaint you, for the information of the Commodore and officers of the Royal Yacht Club, that, as a mark of His Majesty's gracious approval of an institution of such national utility, it is his gracious wish and pleasure that it shall be henceforth known and styled 'The Royal Yacht Squadron,' of which His Majesty is graciously pleased to consider himself the head." At the same time the King commenced the practice of presenting a 100-guinea cup each year to be raced for by members of the Squadron, a practice which has been followed by the reigning sovereign ever since, with interruptions at the time of the death of the Prince Consort and the war with Germany.

The Royal Thames Yacht Club.

The Royal Thames Yacht Club, now one of the best known of the British sailing bodies, came into existence in 1823 in consequence of a quarrel among the members of the old-established Coronation Sailing Society, which used to have its races above bridges on the Thames. Eight members broke away and started the Thames Yacht Club for themselves, which obtained the patronage of King William IV in 1827 and became the Royal Thames Yacht Club in 1831. In 1839 it moved its racing centre lower down the river, and was one of the first British clubs to institute long-distance matches. It is now one of the best known yacht clubs in the world, while the Coronation Society is long forgotten.

The "Arrow."

The *Arrow* is perhaps the most famous of the old-time racing yachts. Built in the year 1823 for Mr. Joseph Weld to his own designs, she met with very considerable success, although one must imagine that in those days racing was an easy matter compared with the conditions of to-day. However, she succeeded even against vessels very much larger than herself. So far as type is concerned, she seems to have been a good example of the ideas of the day—a round barrel-like underwater body, with full lines forward and a beautifully easy run aft; in fact a good example of the cod-head and mackerel-tail which was so popular in that day both for naval and pleasure vessels. So successful was she that in the year 1827 her owner built a bigger ship on similar lines, the famous *Lulworth*. He kept the *Arrow* until 1846 and then sold her to a Mr. Chamberlayne, who raced her with remarkable success. When the *America* came across in 1851 and immediately gave British yachtsmen a craze for the schooner rig and the long hollow bow, the *Arrow* was lengthened ahead and astern and converted into a schooner. As such she raced for years, even as late as 1878.

(*Macpherson Collection*

THE CELEBRATED CUTTER YACHT "PEARL," 113 TONS (MARQUIS OF ANGLESEY) WORKING TO WINDWARD OFF THE NEEDLES, WINNER OF THE MATCH OF 800 GUINEAS WITH THE CUTTER "HARROW" (MR. J. WELD)

FROM A COLOUR LITHOGRAPH BY A. DUCOTE, PUBLISHED 1832

(*Macpherson Collection*)

THE CUTTER YACHT "ARROW," BUILT 1821, ROUNDING THE MARK OFF YARMOUTH IN THE MATCH FOR PRINCE ALBERT'S CUP, AUG. 15, 1854.

(From a Colour Lithograph by T. G. Dutton after J. Taylor, Published 1855)

The old racing yachts had remarkably long lives, but it must be remembered that they were never raced as hard as the yachts of to-day. The Arrow was one of the most famous of the old-time British yachts.

(*Macpherson Collection*)

A BERMUDA-RIGGED YACHT.
(From an Oil Painting by J. Lyon, *c.* 1833)

There is proverbially nothing new under the sun, and this oil painting of a Bermuda-rigged yacht executed in 1833 *is an interesting commentary on modern rig*

(*Macpherson Collection*)

THE " ALARM " AS A CUTTER WINNING THE R. THAMES YACHT CLUB CUP, JUNE 25, 1840
(From a Colour Lithograph by Fairland after Taylor)

As famous as the old Arrow *was the* Alarm *which had a large number of races to her credit.*

(*Macpherson Collection*)

THE EARL OF YARBOROUGH (1781-1846)
FIRST COMMODORE OF THE ROYAL YACHT SQUADRON
(From a Mezzotint by Ward after Brig, published 1841)

One of the fine old generation of yachtsmen, Charles, first Earl of Yarborough, was genuinely anxious to improve the science of naval architecture, and in his capacity of Admiral of the Isle of Wight he fought his yacht Falcon *at the Battle of Navarino. He died afloat in* 1846.

(Macpherson Collection)

START FOR THE £1,000 MATCH BETWEEN THE WATER WITCH" AND THE "GALATEA," SEPT. 1, 1834
(From a Lithograph by and after John Ternon)

Matches between two yachts for huge purses were very popular in early nineteenth century yacht racing.

(Macpherson Collection)

THE " AMERICA " WINNING THE CUP AT COWES, AUGUST 22, 1851.
(From a Colour Lithograph by T. G. Dutton, after a Sketch Made on the Spot by O. W. Brierly)

The easy manner in which the schooner America, with her perfectly fitting sails, beat a large field for a Cup presented by the Royal Yacht Squadron, created a sensation. She was owned by a syndicate and when this syndicate broke up it was decided to present the Cup to the New York Yacht Club as a trophy for international competition in perpetuity, thus settling the matter of its ownership.

(*Macpherson Collection*)

THE " ALARM " RIGGED AS A SCHOONER, 1852
(From a Colour Lithograph by G. Hicks after J. M. Gilbert)

The sensational victory of the America *led to a craze for schooner yachts and the famous old* Alarm *was one of these lengthened and re-rigged as a schooner in close imitation of the famous Cup winner.*

THE IRON CUTTER YACHT "MUSQUITO," BUILT 1848

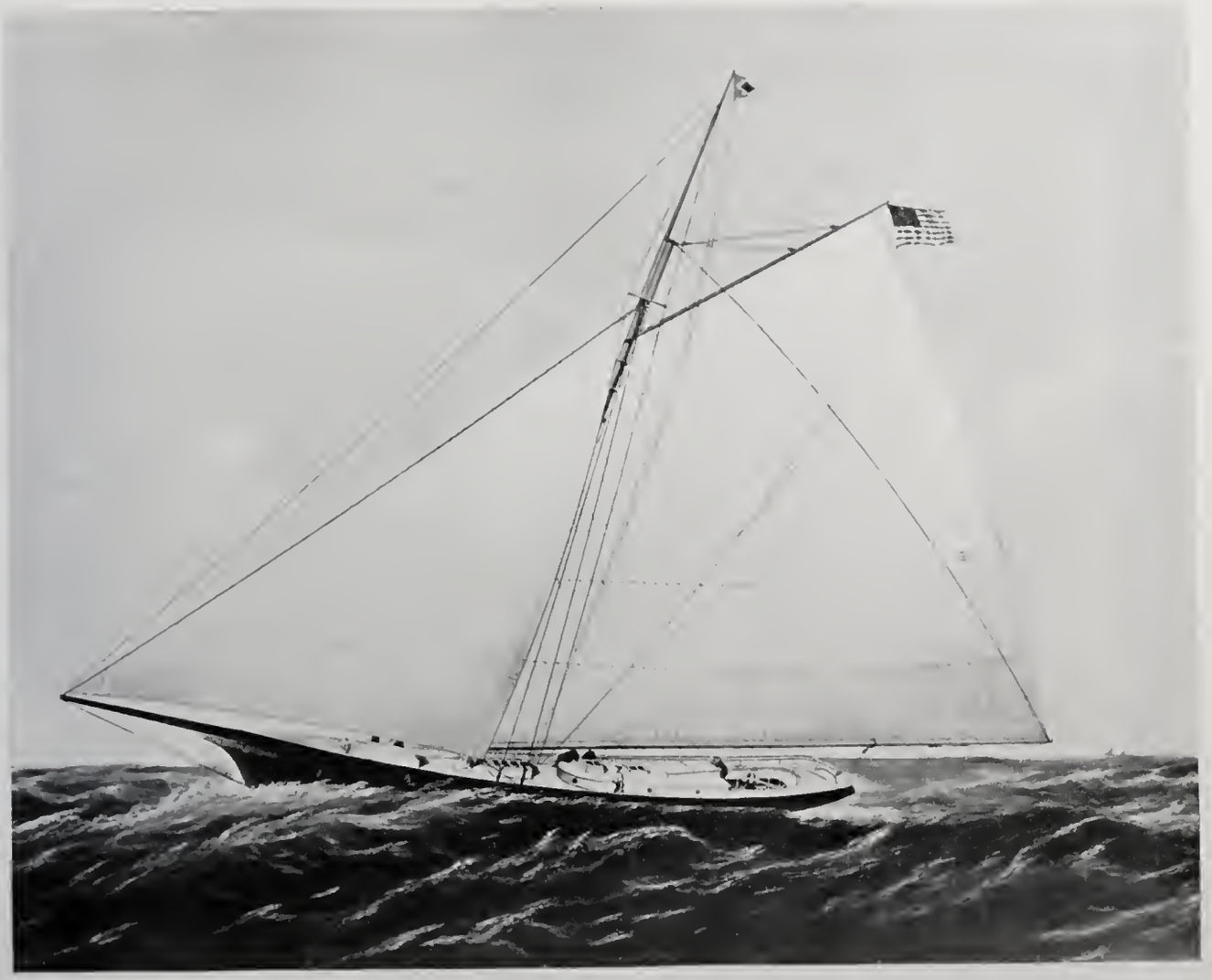
(From a Colour Lithograph by Dutton, 1852)

This early iron yacht was run for a long time as a Club Boat by the Royal Northern Yacht Club, and finished her career as a pilot cutter.

THE AMERICAN SCHOONER "SAPPHO," BUILT 1867.

(From a Colour Lithograph Published 1881)

Defender of the America's *Cup,* Sappho *made two successful visits to Britain. She logged a Transatlantic record of* 12 *days* 9 *hours* 36 *mins. from Sandy Hook to Queenstown, and set a fashion in yacht design.*



(*Macpherson Collection*)

GORDON BENNETT'S YACHT "REBECCA."
(From a Colour Lithograph after C. Parsons, Published 1861)

The Gordon Bennett family have always been very keen patrons of American yachting, which owes a good deal of its success to their efforts.

(*Macpherson Collection*)

THE "FIONA," WINNER OF SEVEN QUEEN'S CUPS AND OTHER PRIZES.

(From a Colour Lithograph by and after Josiah Taylor, Published 1869)

The famous 80-*ton cutter* Fiona, *which was built by Fife in* 1865, *has often been described as the most beautiful yacht ever turned out on the Clyde. She was still racing as recently as* 1905.

(Macpherson Collection)

THE CUTTER YACHT "SPHINX," OFF SOUTHSEA, WINNING THE ALBERT CUP, 1866.

(From a Colour Lithograph after Dutton, Published 1867)

The Sphinx *was one of the most famous of the British cutter yachts of her day and the spinnaker is popularly supposed to perpetuate her name.*

(*Macpherson Collection*)

THE START FOR THE GREAT ATLANTIC RACE OFF SANDY HOOK, DEC. 11, 1866
(From a Colour Lithograph by and after T. G. Dutton, Published 1867)

The great schooner race between the American yachts Henrietta, Vesta, *and* Fleetwing *was one of the most famous ocean races in history. The three yachts finished at the Needles with less than twenty-four hours between the first and the last.*

The "Alarm."

Another famous Weld yacht was the *Alarm*, which was built at Lymington in 1830 as a wooden cutter. She had a tonnage of 193 under the old rule, and in heavy weather could do wonders, although a light breeze would not shift her. Immediately she came out she began to win prizes, and had more King's and Queen's Cups to her credit than any other yacht. Like the *Arrow*, she was given a long bow and schooner rig after the *America's* cup race, and in her case the rig proved eminently suitable, with the result that she won prize after prize. One of her most famous races was a private match for £100 aside against the *America*, which she won by rather more than half a minute. She was finally broken up in 1889, after a long and remarkably successful career.

The New York Yacht Club.

With a people so essentially ship-minded as the coastal population of the North-East Coast of America, it is only natural that yachting should have taken its position as a national pastime very early in its history. It was not, however, until 1844 that any big effort was made to form a really sizable yacht club. In that year a party of yachtsmen assembled on board the schooner *Gimcrack*, owned by Mr. John C. Stevens, and resolved to form the New York Yacht Club. Stevens was elected Commodore, and nine of the principal yachtsmen in the United States joined as foundation members. In 1865 the New York Yacht Club was incorporated by special Act of the State Parliament, but even before that it was the great arbiter of all yachting matters in the United States.

The Yacht "America."

There is probably no more famous yacht in the history of the sport than the *America*, which also appeals to the layman more than any other vessel on account of the cup which bears her name. Commodore John Stevens of the New York Yacht Club, whose floating battery has already been mentioned in the warship section, was one of the keenest yachtsmen in America. He was approached by a shipbuilder named Brown, who volunteered to build a yacht for the club that he guaranteed would beat anything afloat. Accordingly the *America* was launched in 1851, a 170-ton schooner modelled on the design of the famous Sandy Hook pilot schooners. She was tried against Commodore Stevens's yacht *Black Maria* and made a very poor showing, whereupon the club refused to buy her, and Stevens and five other members took her over in appreciation of Brown's sporting conduct. In spite of the poor showing that she made against the *Black Maria*, there is no doubt that she was a wonderfully designed vessel, with hollow bow-lines and low freeboard, and one great point in her favour was that her designer took every care that she should have a perfectly fitting suit of sails.

The *America* crossed the Atlantic to Havre in 20 days 5 hours in spite of being becalmed for four days, and this was a record. Com-

modore Stevens sailed across in her, but he appears to have got on very badly with his partners and is referred to in the diary of one of them as "the old pig." Possibly this was because he brought his own wine on board and they were forced to steal every bottle they drank. Arriving in British waters, he issued several challenges to any British yacht, but in most cases the stakes were too high and it was some time before the *Titania* accepted a more moderate offer.

The "America's" Cup Race.

Before the race between the *America* and the *Titania* could be sailed, her owners had entered her for a £100 cup offered by the Royal Yacht Squadron for a race round the Isle of Wight, open to British and foreign yachts. She was the only foreign entry, which was very disappointing, and she was pitted against five schooners and ten cutters. The biggest was 392 tons, the smallest 48. It was a most unsatisfactory race in every way. To begin with, the wind was very fluky, but more trouble still was caused by the fact that two entirely different courses had been laid down and nobody was very sure which one was actually accepted. Two entrants—the only two yachts which the *America* really feared—took the longer course round the Nab, which was not necessary. As soon as the yachts were well under way the advantage of the *America's* perfectly fitting suit of cotton sails showed itself over the loose hempen bags with which British yachtsmen were then content. The old *Arrow* ran aground, and for some unknown reason the *Alarm* gave up the race to stand by her, although she was not in any sort of danger and there were plenty of vessels about to render any help that was necessary. The *Volante*, which was another dangerous rival, came into collision and lost her bowsprit, the *America* finishing the race under very easy canvas and bringing her crew up to attention to salute Queen Victoria as they passed the *Victoria and Albert*. A small British yacht called the *Aurora* was then gaining rapidly on the *America*, but the race was undoubtedly hers. Afterwards she sailed a number of races in British waters and won as a general rule, although both the *Arrow* and *Alarm* beat her on occasions.

The Later History of the "America."

Although only part of it comes into the subject of yachting, the later history of the famous *America* is well worth repeating. Immediately after the race she was sold to Lord de Blaquière for £4,000, and did a good deal of racing. She then cruised under the ownership of an invalid lady in the Mediterranean, and was later sold to Australia. Shortly before the Civil War she turned up in America, and as soon as hostilities commenced she became a blockade runner under the Cuban flag. She was purchased to carry the Confederate agents Slidell and Mason to Europe, but they preferred to go by steamer, which led to the unfortunate *Trent* affair. She was finally blockaded in the St. John's River in Florida and scuttled by the retiring Confederates. With a good deal of difficulty the Northerners raised her and converted her into

a gunboat to assist in the blockade, where she did remarkably useful work. As steamers became available she was sent to the Annapolis Naval Academy for training midshipmen, and when the British yacht *Cambria* challenged for the *America's* cup in 1870, she was fitted out by the Government and finished fourth in the race, well ahead of the challenger. She was then sold to General Butler, who ran her for many years. When the supply of tonnage became very short during the war with Germany, it was proposed to fit her with Diesel engines and run her as a coaster, but she was bought by an American yacht club as a floating club-house and has since been converted into a museum, a fitting end for such a wonderful old ship.

The "America's" Cup.

Having won the Royal Yacht Squadron trophy in 1851, there was a good deal of discussion among the various yachtsmen who formed the American syndicate as to what should be done with it, and it was not until 1857 that they decided to present it to the New York Yacht Club as an international challenge cup for all time. The deed of gift gave foreign yachts the right to challenge for the match with any yacht or any other vessel of not less than 30 or more than 300 tons. The first matches were against fleets, in precisely the same way as the *America* had sailed against a fleet when she won the cup, but this was afterwards rectified and the deed of gift was several times amended until it was tolerably satisfactory to all parties.

Subsequent Races for the "America's" Cup.

There were two challenges for the *America's* cup before the end of the period. The first was in 1870, when Mr. James Ashbury, who had built his famous schooner *Cambria* in hopes of winning the cup, agreed to race. Added interest in this race was given by the fact that the *Cambria* managed to beat her principal competitor, the *Dauntless*, by 1 hour 17 minutes in a race across the Atlantic. Finally the *Cambria* had to face 23 American yachts and finished eighth, the winner being the schooner *Magic* and the *Dauntless* being third. Next year Mr. Ashbury challenged again with the *Livonia* and instead of putting a huge fleet on the water the Americans defended with one schooner, the *Columbia*, but having the *Sappho* as reserve boat. The *Columbia* won two races out of three and the *Sappho* won two more, giving the Americans the necessary margin of four races out of seven.

Regulating Yacht Racing.

The *America's* famous race in 1851 had given a tremendous impetus to yacht racing in Great Britain, and it was soon evident to everybody that some effort would have to be made to regulate it. In 1852 a confederation of commodores was suggested, but it came to nothing. In the early 'sixties several such suggestions were put forward, but it was not until 1868 that the Royal Victoria Yacht Club took steps to form a "Yachting Congress" of the flag officers of all the principal

British yacht clubs. The proceedings started well enough, but the majority of clubs refused to adopt the suggestions made and after formulating elaborate rules for the constitution of a council, no meeting was ever called. Finally it was in 1875 that the way in which the old tonnage rule was obviously producing unhealthy and dangerous yachts caused Mr. Dixon Kemp and Count Edmund Batthyany to throw all their influence into the formation of the Yacht Racing Association, which was to deal with all matters appertaining to yacht racing and tonnage rules. By the end of our period yachting was firmly established as a popular sport all over the world—as healthy a sport as ever captured the fancy of man—and nearly every maritime country possessed fleets of steam and sailing yachts. Long may the sport flourish.

THE END.

BIBLIOGRAPHY

During the serial publication of this work the author received numerous requests for a bibliography, however short, to assist the reader who has a keen interest in the sea, but who is not a fully fledged student of the subject, to follow up the various points which for lack of space have been only lightly touched upon in the preceding volumes. It was not easy to comply with such a request. A complete bibliography of the sea would occupy a substantial volume, while even the authorities consulted for this work would make a long list. It has therefore been decided to append a short list of books printed in English which carry the various branches of the subject further than has been possible within the limits of this work and which are to be obtained with little or no difficulty.

The author wishes to make it quite clear that this list does not intend to be a complete bibliography of the sea, any more than the work pretends to be a complete history of the biggest subject in the world. Innumerable books essential to the student are omitted because they are not easy to obtain, either new or second-hand. It is merely a guide for those who want to go a little more deeply into the subject. Those who wish to make a close study of the subject are advised to join the Society for Nautical Research.

Ammen, Admiral D., U.S.N. The Atlantic Coast: the Navy in the Civil War. New York, 1883.

Barnaby, Sir Nathaniel. Naval Development of the Century. 1904.

Boynton, C. B. History of the United States Navy during the Rebellion. 2 vols. New York, 1867-69.

Bradlee, Francis B. C. Piracy in the West Indies and its Suppression. Salem, Mass., 1923.

— Steam Navigation in New England. 1924.

— Blockade Running during the Civil War. 1926.

Brassey, Sir Thomas (Lord). The British Navy: Its Strength, Resources and Administration. 5 vols. 1882-3.

Bridge, Admiral Sir Cyprian. The Russian Fleet under Peter the Great, by a Contemporary Englishman (1724). Navy Records Soc., 1899.

Briggs, Sir John. Naval Administrations, 1827-1892. 1897.

British Yachts and Yachtsmen: A Complete History of British Yachting, etc. 1907.

Bulloch, James D. Secret Service of the Confederate States in Europe. 2 vols. 1883.

Burney, James. History of the Buccaneers of America. 1816. Reprints, 1902. 1912.

Busk, Hans. The Navies of the World: Their Present State and Future Capabilities. 1859.

Callender, Geoffrey. The Naval Side of British History. 1924.

— The Sea Kings of Britain.

Chamier, Captain Frederic. The Life of a Sailor. 3 vols. 1833.

Charnock, John. History of Marine Architecture. 3 vols. 1801.

Chatterton, E. Keble. King's Cutters and Smugglers. 1912.

— Sailing Ships: the Story of their Development from the Earliest Times to the Present Day. 1914.

Church, W. C. The Life of John Ericsson. 2 vols. 1890.

Clowes, Sir Wm. Laird. The Royal Navy: A History from the Earliest Times to the Present. 7 vols. 1897-1903.

Coates, Commander W. H. The Old "Country Trade" of the East Indies. 1911.

— The Good Old Days of Shipping.

Colomb, Admiral P. H. Naval Warfare: Its Ruling Principles, etc. 1899.

— Slave Catching in the Indian Ocean. 1873.

Colonial Institute, Royal. Proceedings.

Cook, Captain James. Voyages. Various Editions.

Cooper, J. Fennimore. History of the Navy of the U.S.A. 2 vols. Philadelphia, 1839. Various Reprints.
Corbett, Sir Julian S. Monk. 1899.
— Sir Francis Drake. 1890.
— Drake and the Tudor Navy. 2 vols. 1898.
— The Successors of Drake. 1900.
— England in the Mediterranean, 1603-1713. 2 vols. 1904.
— England in the Seven Years' War. 2 vols. 1907.
— The Spanish War of 1585-7. Navy Records Soc., 1898.
Cornewall-Jones, R. J. History of the British Mercantile Marine. 1898.
Currey, Commander E. Hamilton, R.N. Sea Wolves of the Mediterranean. 1910.

Dahlgren, J. A. Shells and Shell Guns. Philadelphia, 1856.
Dampier, William. Voyages Round the World. Various Editions.
Dana, R. H., Junr. Two Years Before the Mast. 1845, and later editions.
Darwin, Charles. The Voyage of the *Beagle*. Various Editions.
Dundonald, Thomas, 10th Earl of (Lord Cochrane). The Autobiography of a Seaman. 2 vols. 1860.

Eardley-Wilmot, Admiral Sir S. The Development of Navies During the Last Half Century. 1892.
Eastwick, Captain R. W. A Master Mariner: Being the Life and Adventure of. 1891.
Esquemeling, John. The Buccaneers of America. Various Editions and Reprints.

Farragut, L. Life of David Glasgow Farragut. New York, 1879.
Fea, Allan. The Real Captain Cleveland. [1912.]
Fitzgerald, Admiral C. C. Penrose. Life of Vice-Admiral Sir George Tryon. 1897.
Fletcher, R. A. Steamships and the Story of Their Development. 1910.
Fraser, Edward. Champions of the Fleet. 1908.
— In the Fighting Days at Sea. [1911.]
— Greenwich Royal Hospital. 1908.
— The *Londons* of the British Fleet. 1908.
— The Fighting Fame of the King's Ships. 1910.
— The Sailors whom Nelson Led. 1913.
Fry, Henry. The History of North Atlantic Steam Navigation. 1896.

Gabe, Julius. Yachting: Historical Sketches of the Sport. 1902.
Gosse, Philip. The Pirate's Who's Who. 1924.
Gould, Lieutenant-Commander Rupert R. T. The Marine Chronometer: Its History and Development. 1923.

Hakluyt Society. Volumes published by.
Hall, Captain Basil. The Log-book of a Midshipman. 1896.
— Voyages and Travels. 3 vols. 1833.
Hannay, David. Ships and Men. 1910.
— Admiral Blake.
— Rodney. 1891.
— Letters of Sir Samuel Hood. Navy Records Soc., 1895.
Hawes, Charles Boardman. Whaling. 1924.
Hay, Admiral Sir J. C. D. Lines from My Log-books (1834-1887). Edinburgh, 1898.
Hickey, William. Memoirs. Edited by A. Spencer. 3 vols. 1923.
Hobart Pasha, Admiral. Sketches from My Life. 1886.
Holmes, Sir George C. V. Ancient and Modern Ships. 2 vols. 1900-6.
Hoste, Captain Sir William. Service Afloat. 1887.

James, William. The Naval History of Great Britain. 6 vols. 1886.

KEPPEL, Admiral Sir Harry. A Sailor's Life under Four Sovereigns. 3 vols. 1899.
KING, J. W. The Warships and Navies of the World. 1880.
KIRKALDY, Adam W. British Shipping. 1914.

LAUGHTON, Sir John Knox. Studies in Naval History. Biographies. 1887.
— The Story of Trafalgar. Portsmouth, 1890.
— Nelson. 1895.
— Nelson and His Companions in Arms. 1896.
— From Howard to Nelson. 1899.
— Defeat of the Spanish Armada. 2 vols. 1894.
— A Naval Miscellany. 2 vols. Navy Records Soc., 1902-12.
LAUGHTON, L. G. Carr. The British Navy in War. 1914.
— Old Ship Figureheads and Sterns, etc. 1925.
LECKY, Captain H. S. The King's Ships: Together with the Important Historical Episodes Connected with the Successive Ships of the Same Name of Remote Times. Vols. I-III. A.-J. 1913.
LINDSAY, W. S. History of Merchant Shipping. 4 vols. 1874.
LOW, C. R. History of the Indian Navy from 1613-1863. 2 vols. 1877.
LUBBOCK, Basil. The Blackwall Frigates. Glasgow, 1922.
— The China Clippers. Glasgow, 1912.
— The Western Ocean Packets. Glasgow, 1925.
— The Colonial Clippers. Glasgow, 1921.
— The Log of the *Cutty Sark*. Glasgow, 1924.

MACLAY, E. S. A History of American Privateers. 1900.
MAGINNIS, Arthur J. The Atlantic Ferry: Its Ships, Men, and Working. 1892.
MAHAN, Admiral A. T. The Influences of Sea Power upon History, 1660-1783. 1890.
— The Influence of Sea Power upon the French Revolution and Empire, 1793-1812. 2 vols. 1892.
— Sea Power in its Relations to the War of 1812. 2 vols. 1905.
— From Sail to Steam. 1907.
— Types of Naval Officers. 1902.
Mariner's Mirror, The Journal of the Society of Nautical Research. Published Quarterly.
MARKHAM, Captain A. H. Life of Sir John Franklin. 1891.
MARKHAM, Sir Clements R. Life of John Davis . . . the Navigator, 1550-1605. 1889.
— Life of Christopher Columbus. 1892.
MARRYAT, Captain Frederic. The King's Own; Peter Simple; Jacob Faithful; Mr. Midshipman Easy; and other Nautical Novels.
MARTIN, Frederick. The History of Lloyd's. 1876.
MASEFIELD, John. Sea Life in Nelson's Time. [1905.]
MEHEGAN, J. J. O'Higgins of Chile. 1913.
MELVILLE, Herman. Moby Dick, or The White Whale. 1851. Various Reprints.
MOORE, Sir Alan, Bart. The Last Days of Mast and Sail. 1925.
— Sailing Ships-of-War, 1800-1860. 1926.
MORGAN, J. M. Recollections of a Rebel Reefer. 1918.
MORISON, S. E. The Maritime History of Massachusetts, 1783-1860. Boston, 1921.
MORRISON, J. H. History of American Steam Navigation. New York, 1903.

NANCE, R. Morton. Sailing Ship Models. 1924.
NAPIER, Sir Charles. History of the Baltic Campaign of 1854. 1857.
NARES, Vice-Admiral Sir G. S. Narrative of a Voyage to the Polar Sea during 1875-6. 1878.
— Seamanship. 6th edition. Portsmouth, 1882.
NAVY RECORDS SOCIETY. Volumes published by.
NORMAN, C. B. The Corsairs of France. 1887.
NORMAN, Commander F. M. " Martello Tower " in China and the Pacific, 1856-60. 1902.
NORWAY, Arthur H. The History of the Post Office Packet Service Between the Years 1793-1815. 1895.

Oppenheim, M. A History of the Administration of the Royal Navy and of Merchant Shipping in Relation to the Navy from 1509 to 1660. 1896.

Paine, Ralph D. The Ships and Sailors of Old Salem. 1924.
Pepys, Samuel. Diary. Various Editions.
Preble, Admiral G. H. A Chronological History of the Origin and Development of Steam Navigation. Philadelphia, 1883.

Reed, Sir E. J., U.S.N. Our Ironclad Ships: Their Qualities, Performances, etc. 1869.
Richardson, Wm. A Mariner of England. 1908.
Robertson, Engineer-Commander F. L. The Evolution of Naval Armament. 1921.
Robinson, Commander Chas. N. The British Fleet. 1894.
— The British Tar in Fact and Fiction. 1909.
Rogers, Woodes. Life Aboard a British Privateer in the Time of Queen Anne. Edited by R. C. Leslie. 1894.

Scharf, J. T. History of the Confederate States Navy. 2nd ed. Albany, N.Y., 1894.
Scoresby, Wm. Journal of a Voyage to the Northern Whale Fishery. Edinburgh, 1823, and later editions.
— Account of the Arctic Regions. Edinburgh, 1820, and later editions.
Semmes, Admiral Raphael, C.S.N. Memoirs of Service Afloat During the War Between the States. Baltimore, 1869.
Shore, Commander Hon. H. N. Smuggling Days and Smuggling Ways. 1892.
Simon, A. L. The History of the Wine Trade in England. 1906.
Smollett, Tobias. Roderick Random. Various Editions.
Soley, J. R. The Blockade and the Cruisers. New York, 1883.
Spry, W. J. J. The Cruise of the *Challenger*. 1877.
Stone, Herbert L. The " America's " Cup Races. [1918.]
Sueter, Admiral M. F. The Evolution of the Submarine Boat. Portsmouth, 1908.
Sulivan, Captain G. L. Dhow Chasing in Zanzibar Waters. 1873.

Tanner, J. R. Hollond's Discourses of the Navy, 1638 and 1659. Navy Records Soc., 1896.
Taylor, Thos. E. Running the Blockade . . . during the American Civil War. 4th ed. 1912.
Torr, Cecil. Ancient Ships. Cambridge, 1894.

Very, Lieutenant E. W., U.S.N. Navies of the World. 1880.

Wallace, Frederick William. Wooden Ships and Iron Men. 1925.
Williams, Gomer. History of Liverpool Privateers and Slave Trade. 1897.
Wilson, H. W. Ironclads in Action. 5th ed. 2 vols. 1897.
Woolward, Captain Robert. Nigh on Sixty Years at Sea. [1894.]

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